THE CENTENARY OF THE LANCET: FOREWORD

THE Supplement which follows makes no pretence to being a history of medicine during 100 years; but it is hoped that it will be found an interesting footnote to such a history, as a record of professional and scientific progress reflected in the pages of one journal.

The continuity in narrative which this would seem likely to entail has not been preserved, because different subjects were undergoing evolution side by side; then, as for example under the headings of Anæsthetics and Antiseptics, it was necessary to narrate the sections without a break, if the part played by THE LANCET *was to be comprehensible. The advance of clinical medicine has not been illustrated by the selection for notice of particular communications to our pages, because here the general story is to be found in the familiar literature of medical science, and to prove that it will be found in our columns seemed needless.*

The work done by THE LANCET *through special inquiries into matters of public health has been illustrated by quotations from some of the published reports, especially where the connexion between the reports and future legislation has been admitted, as in the case of the Analytical and Sanitary Commissions; where the account of the conditions furnishes an opportunity for comparison with those of to-day, as in the "Report on Railway Travelling"; or where the investigation has proved of value on the professional side, as in the series of articles entitled "The Battle of the Clubs."*

Much of the Supplement is frankly domestic, opportunity having been taken to record the gratitude of our predecessors and ourselves for the help which has made it possible for us to celebrate a centenary, and still to feel young. The earlier sections are much more detailed, since personalities and things were under notice which could not be objects of memory to many living, but which it has been considered useful and proper to recall. It would not have made the story any clearer to have commented in a similar way on the careers or characteristics of those nearer our own time who have either written for, or been written about, in THE LANCET. *The emphasis has thus been laid of purpose on past events, but we trust that the record, being one of evolution, will be found to justify the hope of further progress.*

Thanks are due to many friends for assistance in the preparation of the Supplement, while the courtesy of the Royal College of Physicians of London and the Royal College of Surgeons of England has enabled us to reproduce some interesting portraits. Other illustrations we owe to the assistance of the Librarian of the British Medical Association, Sir D'Arcy Power, and Dr. Arnold Chaplin.

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EDITORS OF THE LANCET

THOMAS WAKLEY
1823—1862

THOMAS H. WAKLEY
1886–1905

JAMES WAKLEY
1862–1886

THOMAS WAKLEY, JUN.
1886–1908

SIR SQUIRE SPRIGGE
1908–

THE CENTENARY OF THE LANCET

OCTOBER 5th, 1823—OCTOBER 5th, 1923.

THE FOUNDING OF THE LANCET.

THE first number of THE LANCET was issued on Oct. 5th, 1823, which was a Sunday, and the events of its first 20 years all centre round the actions of its founder. The founder of THE LANCET was Thomas Wakley, the youngest of the eight sons of a Devonshire farmer, and he was only 28 years of age when the first number of the journal appeared. The idea of producing a weekly paper was the outcome of a short but exciting personal experience as a practitioner and a chance acquaintance with William Cobbett. Cobbett was at that time making a series of political tours, traversing England on horseback, and publishing in his paper, the *Political Register*, his shrewd and eloquent criticisms of rural conditions. He had passed through an anxious and not wholly creditable period of his life, and he found himself winning a great position in letters by his championship of the cause of the weak generally, and by the frank advice which he was giving in his works of domestic and educational utility. To him Wakley confided his views upon the anxious position occupied by the rank and file of the medical profession at that date, and from him received the natural advice that he should get the arguments for reform in front of the reading public at the earliest opportunity.

MEDICAL TRAINING IN 1823.

Wakley's first-hand experience of the medical profession before he attempted to found a newspaper may be summed up as follows: He went to a London hospital and noted there conditions directly at variance with his ideas of justice. He found that, although the student might play his part in the educational scheme laid down by hospital authorities—namely, to pay fees and attend classes—the authorities at the hospitals were not prepared to play their part. The schools were insufficient in number, compelling the student to attend overcrowded private classes. The lectures at the regular schools were not delivered by the eminent people who received the fees, but by their demonstrators; the one great practical help to the acquisition of a sound knowledge of pathology, namely, presence at post-mortem examinations, was only secured by the clandestine feeing of porters in post-mortem rooms; the honorary staff, from whose lips the student was supposed to learn the science of healing, were capricious in their visits and were generally dumb upon the occasions when they appeared; the lists of operations were not published to the students at large, but only communicated to the favoured pupils of the staff, who knew what was going to be done by the great men and at what time. And how was the class of favoured pupils selected? Wakley found that the student could be relegated to a position in his profession, which was marked out from the beginning to be and to remain inferior, not in the least through want of personal merit, but entirely because he had not paid a fee to apprentice himself to a great man. Seeing that a popular operator, lecturer, teacher, or consultant adviser could ask and obtain high fees from his pupils, it followed that command of money at the beginning of a student's career might ensure success, while lack of money was condemnation to an inferior position. Wakley had no objection to being a general practitioner; on the contrary, he desired to be one. But having lived as a student for three years in the house of two hard-worked members of this class, sharing their labours and knowing their trials, and estimating the amount of good that they did and the amount of influence for good that they were able to exercise over the community, he recognised that these men were set on one side and looked down upon by their privileged brethren, who had themselves obtained their places in the medical hierarchy by purchase and not by merit. Wakley saw also that these fortunate ones, being in posts of office, took the emoluments and omitted to do the work. His sense of fairness revolted at these things, and none

the less because he personally suffered from the abuses. The attitude towards hospital officials that he was soon to reveal, his readiness to find those superior beings wanting in skill, and his pertinacity in convicting them of unfairness and nepotism, were thus accounted for. As medical student, and as apprentice, Wakley had imbibed the belief that the doctor in general practice, like the student without financial backing, did not get justice, and that those who were wronging them were their leaders, who ought to have protected them.

A MYSTERIOUS OUTRAGE.

Immediately upon qualification as a Member of the Royal College of Surgeons of England, Wakley married and brought his wife to No. 5, Argyll-street, Regent-street, London, where, with his father-in-law's aid, he had acquired a practice; and it is interesting to know that the goodwill of the practice, situated in what was in 1820 a solid residential district, cost £400. Life was now running for him on an even keel. He had always the reforming spirit, but it seems quite likely that if this fortunate start had been smoothly continued his sense of grievance at the abuses in medical organisation would have abated and the regeneration of the medical practitioner would have awaited some other inspirer. But almost at once catastrophe fell upon him. In August of the same year in which he married a violent assault was made upon him by unknown ruffians, his house was gutted, and what property there was in it was destroyed or stolen.

The cause of the outrage was never exactly discovered, but a theory that the actions were due to revenge on the part of the followers of Thistlewood, a political desperado who had been executed recently, has considerable probability. It seems to have been widely rumoured that the masked man, stated to be a doctor, who beheaded Thistlewood, was Wakley. The Sheriff of London publicly contradicted the story, but the fact that such a contradiction was called for shows how substantial the rumour became. Wakley had to bring into court his claim against the company with which his goods were insured. This claim was settled, but not without considerable reluctance on the part of the company, who in the end paid the full amount under the terms of the policy and Wakley's costs, while the further expenses were defrayed by public subscription, the evidence having shown on which side right lay.

But though in this way Wakley's pecuniary loss was reduced to a small sum and his good repute before men was restored to him, the effects of the experience abided. He was paid in full, his name was cleared of the aspersions that had been showered upon it, while the public subscriptions to meet such of his costs as would otherwise have fallen upon himself constituted a public apology for the wrong that had been done him. But if his pecuniary loss was negligible and his character re-established, the effects of the circumstances of the past ten months remained and haunted him. They changed the tenour of his ways, forming the sharp stimulus that pricked him from the regular routine of the life of a general practitioner into a course of more free and individual assertion. He had been personally attacked, he had won, and a spirit of combat had been roused. During his time of trial he had found certain of his friends staunch and some of his immediate professional colleagues ready to repudiate for him the hard and evil things that were said of him; but the professional leaders, his teachers, and the College of which he was a Member did nothing. When, therefore, the strife of battle was over he was left an angry and unsettled man. There was not any shiftlessness in his hesitation to embark again in private practice; his reluctance was due to the feeling that he intended not again to be placed in so defenceless a position. He had prepared all things to live the life of a general practitioner of medicine. He had chosen his locality, and furnished his house to that end. Through no fault of his own the house had been destroyed, while enforced neglect of his practice had severed his connexion with his patients. It was necessary for him to start entirely afresh, and the ardent solicitude of a young husband was now replaced by the soreness of a disappointed man, who, though successful in obtaining his rights in a law court, had none the less been subjected to physical and moral savagery, and had lain under undeserved stigma at the moment when he was most in need of sympathy.

THE FIRST MEDICAL WEEKLY.

Wakley was a well-educated man as times went, and he wrote sound, forcible, and grammatical English with a facility and clearness which have been known to escape the highly cultured in our own day. His individual disappointments had turned a vigorous mind towards the reform of the abuses with which he connected the precarious position in which he found himself at the age of 28, and exactly at this juncture he met William Cobbett (Fig. 1), the link that bound them appearing to be that Cobbett, who was editor of the *Political Register* and the *Evening Post*, and the accepted Parliamentary candidate for Coventry, firmly believed that he at one time had also been destined to be a victim of the brutality of Thistlewood's maddened followers. He was 30 years Wakley's senior, was an eloquent propagandist and a brilliant journalist, and he inspired Wakley with the view that reform of the medical profession, which had become Wakley's *idée fixe*, could only be undertaken by the founding of a journal. Abuses similar to those which Cobbett and his school spied out in the body-politic were in the case of the medical profession clear; no one could deny that nepotism was rampant, that pecuniary traffic determined success, and that the educational curriculum was faulty. But the conditions were too special to lend themselves to general public treatment; no wide audience in a lay newspaper would have understood the hardships complained of without a tedious amount of preliminary explanation, whereas medical men, who had undergone

the queer curriculum and were living by the exercise of a disorganised calling, would have no difficulty in appreciating the need for root and branch reforms. To deal with the situation THE LANCET was issued on Sunday, Oct. 5th, 1823, from the anonymous editor's dining-room in Norfolk-street, Strand, where Wakley had now established himself in a modest general practice; and while the contents were nominally addressed to public as well as medical readers, familiarity with professional situations was assumed.

The first number contained a prefatory statement to the effect that the objects of the new journal, which though inspired by London experience were not to be thus confined, would be:—

"To produce a work that would convey to the public and to distant practitioners, as well as to students in medicine and surgery, reports of the metropolitan hospital lectures."

And, secondly:

"To give a correct description of all the important cases that may occur, whether in England or on any part of the civilised continent."

And, as though this programme was not sufficiently inclusive, Wakley added to his promises the following:—

"Our columns will not be restricted to medical intelligence, but, on the contrary, we shall be indefatigable in our exertions to render THE LANCET a complete chronicle of current literature."

We may note how far in the space of 36 small octavo pages it was attempted to keep the promises made. The metropolitan hospital lecture selected for report was one delivered on Oct. 1st, 1823, by Sir Astley Cooper, and it is a good example of chatty exhortation to a medical school, the students present being described by the Editor—it may be feared with an eye on possible subscribers—in these words:—

"We never before witnessed so genteel a surgical class; the sight was most pleasing, for they all appeared gentlemen of cultured manners and good education."

A leading article succeeded entitled "Politics," which showed that it was the editorial intention to rely upon the Radicalism of Cobbett's school for general social views. Some notes on the drama were followed by three carefully written clinical cases from Newcastle-on-Tyne, from Lynn in Norfolk, and from Bedford, indicating the design to excite the interest of widely separated centres. Then came a long quotation, under the heading Medical and Surgical Intelligence, from the columns of a monthly medical journal, the *London Medical Repository*. In this excerpt Mr. Henry Earle, assistant surgeon to St. Bartholomew's Hospital, carries on a controversy with Sir Astley Cooper as to whether fracture of the neck of the thigh-bone ever unites, and also as to whether Cooper had said that Earle was maintaining the contrary view in order to depreciate Guy's Hospital and its teaching—for Cooper, while lecturer at St. Thomas's Hospital, was surgeon to Guy's Hospital. From the journalistic point of view there was considerable sagacity in publishing in the first number of the new medical paper, and in the front pages, an address by the acknowledged leader of surgery, while reprinting, as a quotation, a very civil but candid reflection upon his judgment. This article struck that note of criticism without fear of persons which Wakley intended should be characteristic of his venture, and which, as we shall see, involved him in a group of actions for some ten years. The offer to supply a "complete chronicle of current literature" was met by quoting from the *London Magazine* a letter by "Elia" to Robert Southey, whom the Editor of THE LANCET described as a "sack-hunting hypocritical rhymer," thus expressing the opinion of the Radical party upon the Poet Laureate. A short paragraph, which promised mysterious revelations concerning a clergyman, led to the editorial request for certain information concerning that person, with which the number closes. Having regard to the direction which those revelations afterwards took, we cannot be surprised that in the second number the Editor of THE LANCET has changed his printer.

FIG. 1.—WILLIAM COBBETT.

The following is the first title-page in facsimile (Fig. 2).

FIG. 2.—THE FIRST TITLE-PAGE.

THE

LANCET.

VOL. I.

LONDON:

PRINTED AND PUBLISHED BY J. ONWHYN,
4, CATHERINE STREET, STRAND:

AND SOLD BY ALL RESPECTABLE BOOKSELLERS IN THE KINGDOM.

1823.

The dotted line indicates the size of the page.

THE FIRST TEN YEARS.

A FIERCE STRUGGLE.

FOR the first ten years of its existence THE LANCET was a duelling ground for a series of fierce encounters between the Editor and the members of the privileged classes in medicine. The lectures of certain of the great hospital surgeons and physicians were reported in its pages to the exasperation of the lecturers, and the delight of the profession at large and the students. The great men feared that their fees as teachers in the metropolitan schools would diminish if the cream of their teaching could be bought for sixpence a week instead of £5 a session; while every medical man or student, unable by circumstances to attend the classes of his leaders, rejoiced in the chance offered to him of acquiring familiarity with their methods and theories through the medium of print. The meetings of the medical societies, again, were reported at such length as their importance appeared to warrant—a proceeding which the officials of the societies objected to as an infringement of copyright. They considered that the editor of the Transactions of the Society, a person appointed by themselves, enjoyed the copyright as a matter of common sense as well as common law. These officials belonged, as it was quite right that they should, to the class from which the honorary staffs of the hospitals were selected, and they thus felt doubly outraged. Briefly, from the beginning the hospital surgeons and physicians were ranged in unbroken phalanx in opposition to the new and, as they considered it, mischievous print. The officials of the medical societies followed suit; and the office-bearers of the medical corporations, the practices of which were scathingly reviewed in early issues of THE LANCET, were not slow to scent their foe. Everyone who had anything to gain by the peaceful reign of existing methods in school, hospital, or corporation—a definition which included most of the influential members of the profession—looked with uneasiness at the growing power and popularity of the new journal. Especially were they frightened at the new idea that medical affairs could be treated as an ordinary, though elevated and important, section of human activity, and they were positively shocked to see the common rules of justice and the prevalent methods of business quoted publicly in connexion with these affairs, which they had been bred to consider sacrosanct.

Wakley for his part was quick to discover his enemies, and their tactics dictated his. For the first few weeks THE LANCET attracted no particular attention, and such notice as it received was complimentary. Then a few of the privileged classes became frightened, and in return sought to frighten Wakley. They denounced him as a literary pirate and a disseminator of moral garbage. His replies were chiefly in the nature of reflection on the complete and fretful ineptitude of his denunciators. He pointed to his growing circulation, scattered, with doubtful taste but cruel point, a few nicknames, and hinted at astonishing revelations of abuses arising out of the fact that publicity had hitherto been avoided by hospital officials. As a natural pendant to his assertion that the elections of the staffs of the various metropolitan hospitals were made at the instigation of pure nepotism, accounts were given of maladministration in the schools and malpraxis in the wards. And upon these came action and cross action. Certain of the criticised were compelled to proceed legally against their critic, while their defence outside the law courts, too keenly and bitterly undertaken by friends or rival journals, on more than one occasion laid the defenders open to counter charges of misrepresentation. In the first ten years of the existence of THE LANCET the paper was engaged in no less than ten actions, its opponents being eight separate persons. The proceedings in these various actions constitute an interesting phase in the history of medical reform. Six were for libel, the aggregate sum of £8000 being claimed for damages; the aggregate sum of £155 0*s.* ¼*d.* was awarded, while the Editor's costs were largely defrayed by public subscription. The articles complained of may have been indecent journalism—thus those who suffered never wearied of saying; but they were certainly truthful in all the essentials. Reference in some detail will have to be made to certain of these cases, but it should be remembered that personal libel constituted only an episode in the design of the paper. That the Editor himself revelled in a row led to a disproportionate prominence being given to events which were the necessary accompaniment to a brave policy of reform. The two things which came almost at once to constitute the design of the paper were: (1) To supply medical information which was available at that time to but few people; and (2) to show that hospitals were not served, and that students were not trained, by persons selected for their merits. The libel actions arose out of the publication of supporting evidence, and ceased as reform followed.

COPYRIGHT IN LECTURES: THE ABERNETHY CASE.

The publication of Sir Astley Cooper's lectures in the place of honour in the new paper proved a fine venture. Their issue was unauthorised, but the view of Wakley and his supporters was that no permission was needed for the publication. The lectures attracted and held readers, and hardly less important from a business point of view was the prestige that their publication at once conferred upon THE LANCET. Sir Astley Cooper (Fig. 3) was at the highest point of his professional fame, his unrivalled reputation being enhanced by wealth, personal attractiveness, popularity, a recent baronetcy, and a high position in the social world. As long as Cooper himself did not resent publication of his lectures the frightened owners of vested interests were unable to cry down the paper as a gutter production. As a matter of fact, Cooper went further, probably being soundly advised that his rights in the matter would be difficult of definition. He said that the publicity which was being afforded to him by the publication of his lectures with his name attached, excerpts from

which were appearing in the daily papers, exposed him to the critical gaze of professional brethren;

FIG. 3.—SIR ASTLEY COOPER.

but he added: "I care not who may be acquainted with the doctrines I advance, the instructions I give, or the principles I inculcate whilst in this theatre; therefore I am perfectly indifferent as to who publishes them and equally indifferent as to who may be made acquainted with them." Later, however, he made a modification of this view. On learning that THE LANCET, the secret of whose editorship was at first complete, was produced by an old pupil at the United Hospitals of Guy's and St. Thomas's, Cooper called on Wakley in the character of a patient, and caught him in the act of correcting a proof of one of the lectures. He there and then entered into a compromise under which no objection would be raised to the publication of the lectures if the name of the author was suppressed. The young Editor, having reaped the advantage accruing from a known association with the great Sir Astley, agreed that it was not the name but the teaching that mattered, and accordingly, after the fifteenth lecture had been published, the communications became anonymous.

But the famous Abernethy (Fig. 4) in the following year took a different line, and on the appearance of his clinical lectures in THE LANCET instituted proceedings which have had considerable influence on the law of copyright. Abernethy was backed by many of his colleagues, who said that the whole thing savoured of advertisement, and who may have felt that the revelation of their educational methods would not always redound to their credit. Abernethy objected to transcripts of his lectures, and was ill-advised enough to say, further, that the reports were inaccurate. THE LANCET accordingly reported one of Abernethy's lectures exactly as he delivered it. Abernethy's bluntness and colloquial conversation were notorious, and this is the sort of thing which was published:—

"If I am wrong I shall be very happy to have my errors pointed out and corrected. I'll be hanged if erysipelas is not always a result of a disordered state of the digestive organs. . . . Egad, it is a travelling disease, and, as I say, the parts are disposed to swell. . . . If it be seated in an unimportant part, in the name of G— let it go there. . . . O, said the dresser, it is a case of erysipelas, and he only came in last week. Good G— said I, is it possible?"

Abernethy found it embarrassing to read his expletives in cold print. He was second only to Astley Cooper in the surgical hierarchy of London, he was regarded with peculiar reverence as the exponent of John Hunter's teaching, and he brought an action for an injunction against Wakley, the printers, and the publishers. In the first stage of the case before Lord Eldon, Wakley successfully resisted an attempt to obtain the injunction, when the *London Medical Repository*, politely referred to by Wakley ever afterwards as the "Mausoleum," expressed the view, in the picturesque language of the time, that the action of THE LANCET was no better than thieving. There immediately appeared in THE LANCET an article daring Abernethy to attempt to interfere again with the publication of his lectures. It was pointed out that it was of public importance that these lectures should be good, inasmuch as, by a by-law of the Royal College of Surgeons of England, recently framed by the Court of Examiners, of

FIG. 4.—JOHN ABERNETHY.

which Abernethy himself was at the time a member, the London students could not abstain from attending Abernethy's lectures if they wished. This by-law compelled all the medical students in London to attend lectures by some five persons, of whom Abernethy was one, and the wrong that could be done under the exercise of such authority seems to have been the first thing to direct the attention of THE LANCET to abuses within the College. But from this moment the policy and procedure of the College were always submitted to close scrutiny.

At this time only six London hospitals possessed medical schools—namely, St. Bartholomew's, St. George's, the London, Middlesex, and the United Hospitals of St. Thomas's and Guy's; Westminster Hospital was at the time a dispensary, Charing Cross Hospital can be best described as a large ambulance station, University College and King's College respectively came into existence in 1833 and 1839, and St. Mary's Hospital dates as a separate entity from 1845. So when it was pleaded for Abernethy that the publication of his lectures was likely to lead to the diminution of his surgical classes, and therefore to abatement in his fees, Wakley, who knew that this could not happen, wound up a leading article by saying, "In the name of God don't let us hear any more of such loathsome trash."

Abernethy immediately made a second application for an injunction and thereon occurred a stalemate. The Lord Chancellor went back on himself, and Abernethy now secured the judgment, but shortly afterwards the injunction was dissolved upon a motion from Wakley's side, Wakley in the meantime having published addresses by Abernethy precisely as if no injunction existed, on the grounds that the lectures were delivered in a public capacity. The new argument placed in Wakley's hands was supplied by Abernethy himself, who tendered his resignation as a surgeon to St. Bartholomew's while desiring to remain a lecturer. The governors refused to accept his resignation as a surgeon unless he gave up his lectureship. That proved, said Wakley, that the lectures were delivered in a public capacity as surgeon to a public charity, while a certain section of the students of the metropolis must attend them whether they liked or no. The argument was uncontroverted and Lord Eldon removed the restriction.

And now legal action followed indirectly upon the publication of Sir Astley Cooper's lectures. For these appeared in book form, edited by Frederick Tyrrell, a colleague, when Wakley, smarting under a good many accusations of having stolen Astley Cooper's work, asserted that the text of the lectures, as now published, had been bodily stolen from THE LANCET, a few illustrative, and mostly unimportant, cases having been tacked on. The plagiarism could not be denied, nor could the fact that the clinical notes added were seriously inaccurate, but such was the venom of Wakley's remarks on the subject, so thoroughly did he hold up the unfortunate Tyrrell to contempt, that he can hardly have been surprised when Lord Chief Justice Best fined him £50 after an action for libel. Lord Chief Justice Best thought that the author had been libelled not so much by the things said as the way in which they were said. The fine and costs were immediately paid by public subscription.

The law of copyright in lectures under the old Act was not very clear or definite, but the Act 5 & 6 Will. IV., c. 65, has been repealed, and lectures, as well as all other copyright property, are now governed by the Act of 1911, which came into operation July 1st, 1912. Common Law right in the matter of copyright property has been done away with, and everything depends on statute in the case of an unpublished work "at the date of making the work, if the author is a British subject or resident within His Majesty's Dominions." Copyright under the statute means "the sole right to produce or reproduce the work or any substantial part thereof in any material form whatsoever, to perform or in the case of a lecture to deliver the work, or any substantial part thereof in public." Under section 35 "lecture" is defined to include "address, speech, and sermon." Under section 1, subsection 3, of the Act, "publication" does not include the "delivery in public of a lecture," and under section 2, subsection 1, par. v., the following act shall not constitute an infringement:—

"(v.) The publication in a newspaper of a report of a lecture delivered in public, unless the report is prohibited by conspicuous written or printed notice affixed before and maintained during the lecture at or about the main entrance of the building in which the lecture is given, and, except whilst the building is being used for public worship, in a position near the lecturer; but nothing in this paragraph shall affect the provisions in paragraph (i.) as to newspaper summaries."

And paragraph (i.), as to newspaper summaries, runs as follows:—

"(i.) Any fair dealing with any work for the purposes of private study, research, criticism, review, or newspaper summary."

From this statement it is clear that an elaborate reproduction of a lecture is forbidden when the requisite notice is affixed, but, notice or no notice, a reasonable newspaper summary is not an infringement. These restrictions only refer to the delivery of a lecture in public. When a lecture is delivered privately—there have been various legal decisions on the point—then any public report is an infringement of copyright. The present position has been reached largely through the original action of THE LANCET in publishing Sir Astley Cooper's lectures.

MALPRAXIS IN HOSPITALS: THE BRANSBY COOPER CASE.

Of the innumerable small quarrels that arose and were threshed out in its columns during this decade it will serve no purpose to speak. They would not be illustrative of anything in Wakley's character that is not sufficiently made clear already. They were but episodes in a contentious career, the border warfare incidental to Wakley's invasion of the privileges of the leaders of the pro-

fession. But his fight for the right to print the lectures of hospital surgeons and his determined attacks upon hospital practice, when wrongly carried on, must be looked upon as organised campaigns. These formed one-half of his policy of aggression as a reformer; the other half was formed by a crusade against the Royal College of Surgeons of England.

If the publication of their lectures aroused irritation and even apprehension, the suggestion to publish notes of the proceedings in the operation theatres aroused fury in the staffs of the hospitals. Wakley, however, announced his intention of reporting operative procedures for the instruction of the general medical constituency, and when he found that his reporters were to be excluded from the operating theatres he declared war, stating that he believed that it was in the interests of the public that such reports should be made, and that only those people who were afraid of publicity—persons whom he persistently called "hole-and-corner surgeons"—would have any legitimate objection. Accordingly reports were published from the various operating theatres, even when the walls were placarded with prohibitions. The exclusion of the supposed emissaries of THE LANCET did not stop notes of all proceedings regularly appearing in the paper, and the articles were for the most part so well and temperately done that the connivance of the staffs was perfectly certain. Everyone could see that Wakley was helped from the inside in his criticisms of hospital practice, as he was later in his denunciation of the Council of the Royal College of Surgeons of England. But all the hospital reports were not favourable to the operators, malpraxis being noted at St. Bartholomew's, Guy's, St. George's, and St. Thomas's, and severe comments were sometimes added. Thus the writer of a report of an operation for strangulated hernia at the Middlesex Hospital went so far as to say that, seeing the unfortunate patient's plight when the operation was conducted, he could only conclude that it was the practice at the Middlesex Hospital for the surgeons to wait before operating until all chance of recovery had gone; and he added that only one patient had recovered from an operation for strangulated hernia at that hospital in the course of two years.

Many members of the London hospital staffs were incensed at such criticisms of themselves and their class, but the report of a lithotomy operation at Guy's Hospital by Mr. Bransby Cooper (Fig. 5), a nephew of Sir Astley Cooper, brought matters to a head. It was written in so malignant a style that the terrible mischief, as well as the power, of sensational journalism was remarkably illustrated by it; it was at once the very best and the very worst that such a report could be. The story was cast in dramatic form. It was divided into Act I. and Act II., while the result of an examination of the body after the death of the patient was added as an epilogue. The first Act set out the preliminary steps of the operation, which took 20 minutes, and clearly insinuated that, the original incision having been wrongly made, the operator lost his proper appreciation of the anatomical geography of the region, and attempted violently to effect a passage with his forceps where no incision had cleared the way—that in his attempts to reach the bladder he made a false passage. The second Act, stated to have lasted half an hour, accused the operator of having hopelessly lost his head. It described him as calling for all forms of instruments, notably for one, the scoop, that must have been useless until the foreign body was actually located; as asking for the assistance of his colleagues, and even his dresser; as complaining in front of the

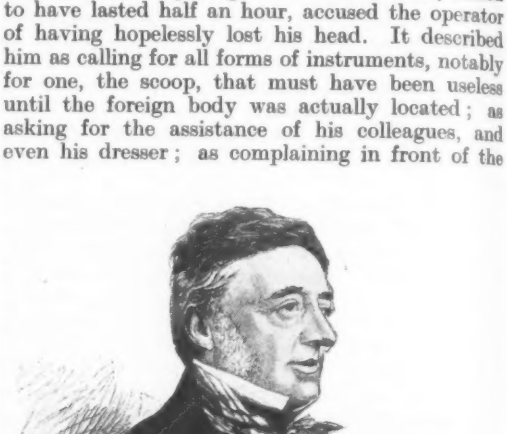


FIG. 5.—BRANSBY COOPER.

patient, of course unnarcotised, of his utter inability to understand the cause of failure to extract the stone; and, finally, when at last the operation was over, of attempting to explain the difficulties to the appalled assembly of surgeons and students, while the conscious and dying patient still lay bound upon the operating table. No more terrible picture of incompetency, of want of skill, want of nerve, and want of heart could be imagined than the picture that was drawn, and the epilogue was in keeping. A brief description of the parts concerned in the operation was followed by the most unmistakable insinuation that the reason why Mr. Bransby Cooper had failed to extract the stone from the patient's bladder was because his forceps had not been in the bladder at all.

Stripped of all verbiage, the report meant that the authorities of Guy's Hospital had elected Mr. Bransby Cooper upon their staff because he was Sir Astley Cooper's nephew, that he had killed a patient by gross mistakes during an operation, and that he was so concerned at his exhibition of ignorance that he behaved with callousness to the sufferer. Nepotism on the part of the management and malpraxis on the part of the executive had been Wakley's accusations against

the London hospitals, and now one set of circumstances appeared to him to prove that he was right in both directions. An action for libel immediately followed on the publication of the report, when Wakley was not entirely happy in his witnesses. It was fairly obvious that some of the information with which he had been supplied had been given in confidence, and that the informer could not be asked to vouch for it in a law court, and publicly. But, on the whole, the paper was able to maintain the accuracy of the article. A group of distinguished surgeons and pathologists spoke in behalf of Bransby Cooper: his excellent training, his creditable record, the difficulty of the operation, the possibility of anatomical abnormalities were all sworn to, and the jury, after an absence of two hours, delivered a verdict for the plaintiff of £100. It was clear that the jury believed the main statement that malpraxis had occurred, for on no other ground could they have let off THE LANCET so cheaply, having regard to the things printed. What had already happened in the Abernethy case happened in the Bransby Cooper case; the jury considered that THE LANCET had justified the main thesis, but ought to be fined for indecency of language. A public meeting was held on the following day, resolutions were passed that THE LANCET was conducted in the best interests of medical reform, and that a subscription should be opened to defray the expenses of the late action. Wakley asked for £408 7*s*. 9*d*.: £295 10*s*. Mr. Bransby Cooper's costs; £100 the plaintiff's damages; and £12 17*s*. 9*d*. otherwise made up. The sum was subscribed in the room, and certain subscriptions which reached the secretary later were given to the widow of Bransby Cooper's patient.

A FIGHT WITH AUTHORITY.

A FULL account of the constitution of the Royal College of Surgeons of England is outside the scope of this short contribution to medical history, but the headings of the story must be given to make the conduct of THE LANCET for a long period intelligible.

THE CONSTITUTION OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

By the Act of 1745 it was enacted that the Master of the Company which was the precursor of the College, and at least one of the governors, should be represented at every Court with one or two Assistants to constitute a quorum. It happened that in consequence of the death of one governor and the illness of another no legal Court was possible on certain occasions, when the Master and Assistants proceeded to business notwithstanding. Accordingly a Bill was brought before Parliament to legalise what had happened, and to reconstruct the Company as a College. A petition in opposition caught up this Bill when it had passed the Commons unnoticed and was in its final stage before the Lords. Lord Thurlow defended the privileges of the aggrieved Members of the corporation, who rightly considered that, if the maladministration were made legal, their privileges would disappear, whether the body were termed a Company or a College. The Bill was thrown out, but shortly afterwards a Royal Charter was obtained in an unexpected manner. For in the meantime the Company had accepted charge of Hunter's Museum, for which Parliament had voted large sums of money, and it became sound public policy to dignify its position. The new Charter sanctioned provisions which had been contained in the previous and rejected Bill, and when THE LANCET was founded this abuse was comparatively recent. It served as a weapon in Wakley's hands as soon as he became aware that the general designs for medical reform which he and a progressive staff of writers were advocating were finding in the College a powerful adversary. The chance of THE LANCET lay in a by-law passed by the College in 1824, making it compulsory for students to attend the lectures of certain hospital officials, the regulation to which reference has already been made. Certain of these lectures were being published in THE LANCET, and the contemporary medical press was excessively disturbed in its sense of what was right thereby, and freely called the editor a robber. But if the lectures were compulsory for the students before they could take their diplomas, the private character claimed for them by Abernethy and others was destroyed. A newspaper would have an undoubted right to report them, because it was to the public benefit to know whether instruction which the London medical man must receive was worth receiving. Lecturers chosen in this manner by the Council of the College were constituted public officials in their capacity as lecturers, and in addition to the importance and substantial fees thus ensured to them, could not claim all the privileges enjoyed by private individuals.

In another way THE LANCET was concerned in the working of this by-law. Some of the hospital surgeons appointed as the only persons whose lectures would be considered official by the Royal College of Surgeons of England charged their classes very large fees for attendance. Wakley had not been an affluent student, and had known many men poorer than himself, and he inveighed against the extraction of fees from their pockets for listening to lectures from persons whom he considered inferior surgeons.

The wording of the by-law was as follows:—

> That certificates of attendance at lectures on anatomy, physiology, the theory and practice of surgery, and of the performance of dissections be not received by the court except from the appointed professors of anatomy and surgery in the University of Dublin, Edinburgh, Glasgow, or Aberdeen, or from persons teaching in a school acknowledged by the medical establishment of one of the recognised hospitals, or from persons being physicians or surgeons to any of these hospitals.

It will be seen that this by-law conferred upon the surgeons and lecturers—they were the same persons—of the metropolitan hospitals authority and monopoly in the education of the London students at a time when Wakley was attempting

to show that these persons were elected upon corrupt principles.

The story was well set out in a letter to THE LANCET written by the witty James Wardrop

FIG. 6.—JAMES WARDROP.

(Fig. 6), whose name may still be familiar from its occurrence in some text-books of surgery as the originator of the treatment of aneurysm by distal ligature. The letter purported to be addressed to the Court of Examiners of the College, but was really designed to catch the attention of the Members and to summarise their obvious grievances. It rallied the Court of Examiners on their senility, as proved by their recollection of remote events and ignorance of recent happenings, and recalled the fact that in 1797 an attempt had been made by the then Company, the Corporation of Surgeons, to be erected into a College under a Bill indemnifying the authorities of the Corporation and depriving the commonalty of their rights. According to Wardrop this Bill was rejected because the Corporation had received in fees and quarterages money which they had spent on themselves, and he said that Parliament had become aware of the fact. Two years later, as we have seen, the Corporation accepted the charge of Hunter's Museum, and obtained a Royal Charter for the purpose, which Charter sanctioned most of the provisions contained in the rejected Bill. Wardrop's point was that, while Parliament had refused to pass a Bill which excluded the commonalty from a share in the government, a Royal Charter had subsequently deprived them of legal rights to the franchise, this being also the contention of THE LANCET. But Wardrop added a description of the way in which the College at that time interpreted the charge of the Hunterian Museum :—

"I need hardly remind you, Sir," he wrote, "that the magnificent collection of John Hunter was purchased by Government, and that a loan of a large sum of money was supplied from the same source to erect a suitable building for its reception. Do you think the motive for such liberality was that 21 persons should have power to lock up the museum for eight months in the year? When their Bill was before the House of Lords it was said that they had a theatre without lecturers and a library without books. It is true that we have now some lectures on comparative anatomy and surgery; but the man best qualified to give the lectures on the former subject is doomed to fill the servile office of conservator of the museum. They have also books, and some years ago Sir William Blizard promised that the library should soon be opened. We are still outside the door, however, and a part of the bust of Sir William, like the molten calf of the Israelites, may go down our throats (by the adulteration of bread or the drinking of soda-water) before we shall see a book, especially the Hunterian MSS. The museum is opened twice a week during four months in the year; the hours of admittance are from 12 to 4 o'clock. This does not extend to the whole collection, for the gallery is only accessible from 12 to 2 o'clock. Should the extensive and varied information and indefatigable kindness of the conservator of the museum, Mr. Clift, tempt an unfortunate individual to remain a minute after the clock has struck the hour his crime is announced by the loud and angry sound of the beadle's bell. This noisy warning is very quickly repeated, and lest he should not understand it the beadle calls out in a most autocratic tone, 'This way, Sir.' The College Member descends the steps muttering perhaps, as I have done, 'Any way but this way, Sir.'" (Fig. 7.)

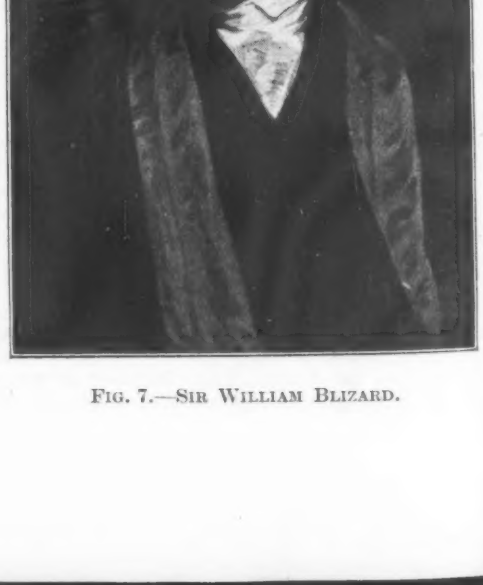


FIG. 7.—SIR WILLIAM BLIZARD.

The apparent purpose of the by-law, it must be admitted, was to aggrandise the hospital surgeon, at whose disposal it placed the lucrative post of lecturer, giving him a monopoly in the payment for and management of the medical education of the student.

AGITATION: CONSTITUTIONAL AND OTHERWISE.

The attitude of THE LANCET for several years became increasingly inimical to the Royal College of Surgeons of England, and not only because it was the offending by-law which led to the action with Abernethy, or because the expert witnesses for the plaintiff in the Bransby Cooper case were high officials in the College. The constitution of the College was an outrage to the radicalism which underlay the theories and practice of all the early staff of the paper. When Wakley maintained that the by-law making it compulsory for medical students to attend the lectures of certain hospital surgeons was a direct way of extracting from the pockets of students large fees for attendance upon the lectures of College officials, and when he associated the College with the nepotism which he was exposing at the hospitals, he was really shaping, almost unconsciously, for a great revision of medical education, and a standardisation of the professional calling. As this became clearer he obtained warm assistance from within the College, sometimes anonymously and sometimes openly, as in the cases of the famous Sir William Lawrence (Fig. 8) and Wardrop. To the credit of Tyrrell, who had been driven to law by Wakley's acrimony, he was also to be found among Wakley's open supporters. A meeting was now organised by THE LANCET, with Lawrence in the chair, of Members of the College, when a resolution was passed that a petition should be presented to the House of Commons for a new Charter. Abernethy rejoined with a circular putting out the views of the Council of the College, in a long explanation of the good work done by the examiners, and of the solicitude with which the Hunterian Museum was cared for. But owing to the general feeling with regard to the destruction of Hunter's manuscripts the last plea counted for nothing, and the movement went forward. The petition was presented, and on the motion of Henry Warburton (Sir Robert Peel, Home Secretary, having at the last moment refused support) the House acceded to the motion, and the College was bidden to render an account of its stewardship.

The prompt victory, however, proved an entirely barren one, for when the matter came to debate there was no one in the House sufficiently well-informed to meet the substantial opposition. Wakley's supporters did not, however, lose heart, and the altercation was carried into the very precincts of the College, and became a literal and physical battle. The occasion arose in a comical manner. Advantage was taken of an official mistake which excluded naval surgeons from the levées of the Sailor King. A party of reforming Members attended the delivery of a Hunterian lecture, and before the lecturer entered Wakley rose and delivered an oration of his own, which resulted in a resolution being passed calling on the Council to vindicate the rights and dignities of its Members in other ways as well as by insisting upon proper treatment of the surgeons of the navy. The resolutions were laid before the Council after the Hunterian lecture, when by a majority of 15 to 3 the Council found themselves unable to act upon them, though the three most

FIG. 8.—SIR WILLIAM LAWRENCE.

important men on the Council—Sir Astley Cooper, Sir William Lawrence, and Sir Benjamin Brodie—formed the minority.

Wakley announced the intention of taking advantage of the next Hunterian lecture to convoke a meeting of the Members, in order to compel the espousal of the cause of the Members in general, of naval officers, and of others equally oppressed. Whereupon the Council issued a notice that no public discussions could be allowed in the theatre of the College, and that the doors would not be opened till a few minutes before the delivery of the lecture. Accordingly the doors of the College were not opened till a few minutes before 4 o'clock, when an assembled crowd of Members entered, while simultaneously the President, the Council, and a group of Bow-street officers entered at the other end. Wakley stood up in the body of the hall, and asked who was responsible for the exclusion of the Members from their College till the last moment. A Bow-street officer was sent to order him out; he refused to go, and was supported by the mass of the meeting. The President left the theatre, and Wakley addressed the meeting and moved a vote of censure on the Council for their treatment of

the Members. The Secretary of the College re-entered with an order from the President and Council, addressed to Wakley personally, that he should quit the theatre. Wakley refused, and a number of Bow-street officers proceeded to expel him by force. Members ran to his assistance, and after a considerable brawl, Wakley gave a Bow-street officer, who had struck him, into the custody of other officers outside. These refused to take the charge, and Wakley proceeded to Bow-street followed by an increasing crowd, where the magistrate who was sitting stated that he could not grant a warrant. Enormous publicity was given in the newspapers to the whole affair, and a rule in the Court of King's Bench was secured, the gist of which was to make it illegal for the Members to discuss in the theatre of the College any subject not connected with the duties of the Corporation.

The unsatisfactory position thus left endured for some three years, and at this point THE LANCET made a bad mistake in policy, and one which had not the endorsement of its best supporters. Wakley proposed to substitute for the Royal College of Surgeons of England a new College of Medicine, which was to have a new Charter, and to do everything as properly as the Royal College of Surgeons of England, in his view and in the view of many vociferous publicists, did everything improperly. It was a socialistic dream, in which all legally qualified practitioners, physicians, surgeons and apothecaries, general practitioners and consultants, were to be associated on equal terms, and were to ballot annually for their officers, and to conduct examinations on a system of medical juries. The candidates at these examinations were not to be required to produce any certificates whatsoever; capability of passing the examinations would be the only professional qualification for obtaining the diploma.

We all know now that for the profession of medicine, at any rate, the examination test is not a sufficient test of practical knowledge, and that students must follow a prescribed course, and acquire their knowledge at properly equipped centres. But 90 years ago this was not so generally accepted, and there were still those who thought that ability to support a thesis, on the mediæval plan, ought to be sufficient trial for the aspirant. For three years THE LANCET carried out what was really an agitation against the Royal College of Surgeons of England under the guise of founding a new College of Medicine, which was, of course, without the elements of existence. Unless the Crown granted a Charter, such an association was useless; unless the State recognised the diplomas of the new body there would be no inducements for candidates to present themselves. A Charter had recently been granted to the Royal College of Surgeons of England, together with money, and against this Charter a petition presented to Parliament had practically failed to effect anything. The House of Commons considered the new scheme the outcome of private ill-will against the officers of the existing College, and at length Wakley acknowledged failure along that line. He had done as much as was possible in his private capacity, and as a journalist he had prejudiced the cause he had at heart by having to own to a complete failure. It remained now for Government to carry on the work that he had commenced, and to carry it on with a far larger scope. The Royal College of Surgeons of England was not the only medical corporation in the kingdom that did not do its duty by its commonalty, and the behaviour of the hospital officials of the metropolis was not the only feature in medical education that needed improvement in the interests of the students. A thorough scheme of reform devised for the good of the public as well as of the profession—in short, a new Medical Act—was wanted, and this could only be carried through with the aid of a party in Parliament. The failure of the London College of Medicine showed Wakley that he must not expect much from any coöperation of the medical profession—in this case a testimony to their good sense—and he resolved to transfer the scene of his struggles from Lincoln's Inn Fields and the columns of THE LANCET to Westminster. Just before the accession of Queen Victoria, Wakley headed the poll in a Parliamentary election for the large borough of Finsbury.

MEDICINE AND THE PUBLIC:

APPEAL TO PUBLIC INTERESTS.

DURING the ten years which are covered between the founding of THE LANCET and the first attempt of Wakley to enter Parliament, the pages of the paper had altered in character; success had both broadened the aims and concentrated them. There was no endeavour kept up to diffuse general information, but the universality of medicine in itself, as permeating every circumstance and activity of life, was being discovered. The vitally important questions of the medical practice at the hospitals, of the constitution of the Royal College of Surgeons of England, with special reference to the influence of its by-laws upon the rights of its Members and the education of students, remained as subjects that would be discussed and re-discussed until practical measures of reform were put in hand. But at the same time the first avowed aim of the paper—namely, the dissemination of authoritative medical information, was kept steadily in view. Though a large proportion of the space was taken up by piquant, not to say scurrilous, articles and correspondence, arising out of situations now taking shape as advanced professional politics, the columns devoted to scientific reports were regularly filled with topical contributions from good men. And these undoubtedly benefited in their practices by the appearance of their work in a journal which appealed to a public unusually wide for scientific writers. For THE LANCET formed the first popular medium for the interchange of medical thought, while constant openings were given for exercise of that thought.

During these ten years a large and varied number of matters were brought forward in which the public was profoundedly interested, when the

medical side was the one dwelt upon. Publicity and a reputation for fearlessness had brought to THE LANCET a heavy mail bag, and the subjects of the administration of the Poor Law, of the Anatomy Acts, of the adulteration or sophistication of food, and of the conduct of coroners' courts were, for example, regularly ventilated.

THE ADVOCACY OF MEDICAL CORONERS.

The attitude taken was professional, and one chief contention in the pages of THE LANCET was that the abuses known to exist in the "Crowner's Quest" would be immediately reduced, or substantially abolished, if the coroner were a medical man. Consequently one of the earliest regular tenets which the readers of THE LANCET were expected to hold was that the office of coroner should be vested in a doctor. The idea was a new one, and to many lawyers, no doubt, also appeared a shocking one, but whether THE LANCET were right or not in insisting that the coroner should possess medical qualifications, thereby implying that under medical coroners all abuses would cease, many writers to THE LANCET had no difficulty in showing that the coroners' courts at the time were rife with abuses. Some of the examples that were printed in THE LANCET during 1828, 1829, and 1830, in illustration of the view that an inquest confided to the supervision of a non-medical coroner presented so many obvious opportunities of error that it ceased to be a public safeguard, are undoubtedly very remarkable. To mention only a few, there is the story of a case of poisoning by prussic acid in which the jury were clearly misdirected. They brought in a verdict of "Suicide during temporary derangement," when there was not only no evidence pointing towards suicide or insanity, but when the possibility of an accident having occurred, and the probability that the accident had occurred through the carelessness of some person other than the deceased, would have been clear to anyone who knew, as the coroner apparently did not know, what was the poisonous dose of prussic acid and what the therapeutic use of this deadly remedy. Another inquest is discussed at some length where a verdict of manslaughter was given against an operating surgeon whose procedure had been perfectly correct, while the fatal injuries which the surgeon was supposed to have caused might have been the natural—that is, pathological—lesions due to the patient's condition, or might, at any rate, have been the natural sequels to such lesions. Only a medical man could have interpreted the medical evidence to the jury in such a way as to ensure justice being done. In a third case a jury brought in a verdict of "Died by the visitation of God and not in consequence of the neglect of any person or persons," where it was perfectly clear to any medical man reading the evidence that the luckless baby, whose death was the subject of the inquiry, had been poisoned by over-dosing with mercury, and had been, in addition, neglected by the medical attendant. The coroner knew nothing of mercurial salivation, the only medical evidence forthcoming was interested, and as a result a miscarriage of justice occurred that would have been impossible if a medical coroner had presided. Another case where the pious but meaningless verdict of "Death by the visitation of God" was given by the jury at the express direction of the coroner, and where all the evidence pointed to the most human agency in the matter, was a wholesale catastrophe due to arsenic poisoning. A family circle having partaken of a particular pie, two died forthwith, a third some 24 hours later, and a fourth was exceedingly sick. The remnants of the pie were thrown into the yard, when some sows ate it, and died there and then. The sequence of events totally escaped the intelligence of the coroner, who obtained from his jury the verdict that his piety desired. The bodies were afterwards exhumed and the cause of death was then found to be arsenic poisoning.

FOOD ADULTERATION.

Adulterations of food were prominently dealt with both in correspondence and in editorial articles. The adulteration of bread with alum, of mustard with barley flour and colouring matters came in for comment, with all their possibilities—as then understood—dependent upon animal tuberculosis and unwholesome meat. In the course of a review the public attitude of THE LANCET towards adulterations of food and drink was laid down in the statement that it would be the duty of the journal never to permit a proved fraud of this description to escape unnoticed, but never to lend the pages of the paper to the creation of epidemic terror by publishing the outcry of every visionary. We shall see that 20 years later THE LANCET, having exactly the same attitude, instituted an inquiry into the abuses of adulteration, under which steps were taken to prove all the charges made.

As with the subject of medical coroners, the medical side was insisted upon in all the editorial articles dealing with food adulteration. But the stated or implied intention to display medicine as a public servant and not as a mysterious councillor in that day of social history was a new idea, and one not altogether grateful to certain practitioners. It was said by the critics of the way in which the paper was being conducted that it was no part of medical men to meddle with the dispensation of the law, their rôle being to await requests for advice. But the closer identification of medical work with social well-being was acclaimed by public men as a valuable departure, such pertinent questions being asked as:—Why should a coroner call a scientific witness when he does not and cannot know that the death is unnatural? or, How can a dishonest tradesman be convicted if evidence of his guilt, only possessed by scientific men, is not supplied?

ANATOMICAL STUDY: BODY-SNATCHING AND MURDER.

The legislation in respect of anatomical study formed another topic of frequent debate in the pages of the paper, the balance being held equally between the scientific and social scales. The arduous position of hospital students at the time of the foundation of THE LANCET was aggravated by the difficulty of obtaining bodies for dissection,

and the appearance of the resurrectionist followed as a natural consequence of the scarcity of subjects.

FIG. 9.—JOSHUA BROOKES.

The large sums which had to be paid by students to obtain materials wherefrom to learn practical anatomy, and the poor substitutes of plates and diagrams with which they had too often to be contented, were blots on the system of medical education, while rifled churchyards constituted a grave scandal. Suddenly a tremendous element of terror was introduced into the situation by the tragedies in Edinburgh with which the names of Burke and Hare are associated in infamy. The facts of the tragedies are too well known to call for a detailed description, and were set out with far more detail in the lay press than in THE LANCET. Suffice it to say that these two men were, during the years 1827 and 1828, engaged in carrying on a ghastly traffic in human bodies, their plan being to induce strangers, lads or women, to accept the shelter of their roof, when, being stupefied by strong drink, they were smothered and their bodies sold to certain Edinburgh surgeons for dissection. Hare gave Queen's evidence and so incriminated Burke as to lead to a sentence of death being passed, when Burke made a confession, admitting his guilty knowledge of murders extending over quite a long period.

A Parliamentary Committee was appointed in response to such revelations; without them it may be feared that the warnings of medical journalism would have gone unheeded. The reference of the Committee was to inquire into the state of anatomy as practised in the United Kingdom, and on this Committee Henry Warburton, whose name should always be remembered in the medical profession as an untiring champion of its true interests in Parliament, was appointed chairman. Among the witnesses were Astley Cooper, Brodie, Abernethy, and Joshua Brookes (Fig. 9), the greatest anatomist of the day and head of the largest private medical school in the metropolis. The evidence of the first and last of these proved that as far as London was concerned the teachers of anatomy were at the feet of the resurrectionists. Wakley was called as a witness in recognition of the numerous articles published in THE LANCET dealing with the inadequacy of medical education of the day, which was allowed to have led up to body-snatching and now was seen to put a premium upon murder. He began characteristically with a criticism of the Royal College of Surgeons of England, pointing out that the Council of the College had drawn up a by-law refusing to accept certificates of dissection except for work that had been performed in the winter season. The obvious effect of this was, he said, to increase the demand for subjects at that season and to raise the price. He considered the dissecting rooms during the winter to be much overcrowded with students and under-supplied with bodies, and laid the whole blame on the objectionable by-law of the College, which limited the number of recognised institutions to the detriment of the private schools. He repeated the counsel given in THE LANCET to obtain the coöperation of parochial authorities, showing that 700 bodies per annum would be ample to supply

FIG. 10.—RICHARD PARTRIDGE AND GARIBALDI

the needs of London, and that more than one thousand unclaimed bodies were buried by parish authorities in the metropolis yearly. The suggestions made by the journal were accepted by the Committee.

Warburton accordingly introduced a Bill, the gist of which was that bodies of men and women who died in workhouses or hospitals without being claimed within a certain time of death should be sold for dissection. This Bill was not clear about licensing anatomy schools, nor did it provide for Christian burial of the remains after dissection, but with modifications in these directions it passed the Commons. In the Upper House it was opposed by a group of peers headed by the Archbishop of Canterbury and withdrawn, when a new tragedy—this time in London—called attention to the absolute necessity for the legal regulation of the study of anatomy. An Italian boy, who made his living by exhibiting tame mice in the streets, was enticed by two ruffians to a den in Bethnal Green, where he was murdered and thrust down a well. The murderers with an accomplice set out to dispose of the body, but suspicious circumstances attracted the attention of Mr. Richard Partridge, the demonstrator of anatomy at King's College, to whom it was offered, and the murder came to light. The men were convicted and executed and the Anatomy Act of 1832 was immediately passed. The illustration (Fig. 10) is from a painting in the possession of the Royal College of Surgeons of England, and shows Partridge in attendance upon the illustrious Garibaldi.

MEDICINE IN PARLIAMENT.

THE primary intention of Wakley to enter Parliament was due to the defeat in Parliament of measures for the reform of the medical profession which he considered to be the result of the absence from the legislature of persons who knew the facts. But this intention gathered force from the discovery in so many different places of public abuses where the services of medicine could be employed in remedy or mitigation. And he was confirmed in his resolution by finding that the medical profession drew warmly to his side as week after week subjects of grave general interest were debated with the proper emphasis laid upon the medical aspects. Accordingly he decided to stand at the first general election after the great Reform Bill for the newly constituted borough of Finsbury.

THOMAS WAKLEY AS PUBLIC MAN.

At this point the story of THE LANCET becomes again very much the story of its founder. In 1831 the borough of Finsbury came into existence and Wakley was now resident in Bedford-square, situated almost in the centre of the enormous new constituency, estimated at 330,000 voters. It included six large parishes, five "liberties," Lincoln's Inn, Gray's Inn, and those parts of the parishes of St. Sepulchre and St. Andrew's, Holborn, and of Furnival's Inn and Staple Inn respectively, which were without the Liberty of the City of London.

Wakley had become favourably known to many neighbours. His treatment of public affairs in THE LANCET commended itself to progressives, and his speeches on parochial and municipal matters were business-like. He was able to support his views not only in THE LANCET, but by valuable assistance from friends in the lay press. His desire, therefore, to transfer his work for placing the status of the medical profession upon a sounder foundation to the House of Commons was singularly well met when an important group of Finsbury electors invited him to become their representative. Over and over again, in war against the constitutional authorities of the professional world, in conflicts with the Royal College of Surgeons of England, and in attempts to break down the barriers of secrecy erected by the administrators of the hospitals, he had felt the need for a strong voice within Parliament. He desired to represent the interests of his profession in Parliament and to press there for reform in medical politics, and he desired also to initiate or take part in departures for the sanitary improvement and physical and moral well-being of the population, whose necessity he had been showing week by week. He was not trying to be a Member for Medicine, but, quite literally, a Member for THE LANCET, as certain public causes were being epitomised and championed in its pages. He saw, as we are seeing to-day, that a period of popular unrest would bring into the House of Commons the legitimate discussion of many medical questions, but though his own aim in desiring to enter the House was to further the cause of medical reform and be an expert witness ready to hand whenever points arose in the deliberations of the House where experience in medical matters would be serviceable, he conformed to the views expressed in THE LANCET that no such electoral cry as "justice for doctors" ought to secure him a seat. He came forward for Finsbury at the first election after the Reform Bill as an advocate of advanced reform principles, as a supporter of all claims for the amelioration of the condition of the people, and in particular as the enemy of Protectionist tariffs on the nation's daily food—a sort of general Radical programme infused with medical knowledge. He was not immediately successful, taking only fourth place among five candidates at the first election which he contested. This was at the end of 1832. Some 18 months later one of the sitting Members became Governor of Bombay, when Wakley contested the seat at the by-election. His decision to do so was made suddenly and his figures which were growing significant, represented only one day's votes. Seven months later a general election followed, when at the third attempt he was duly elected, turning out one of the sitting Members.

THOMAS WAKLEY, M.P.

The first occasion on which Wakley used his seat in Parliament to advance the medical profession was during the debates on a County Coroners Bill, and that occasion showed very well the political power which in those times it was possible for a medical paper to exercise. Many of the actual situations

dealt with in the County Coroners Bill had been stated for years in THE LANCET, and when at last the Bill was presented to Parliament it was rejected

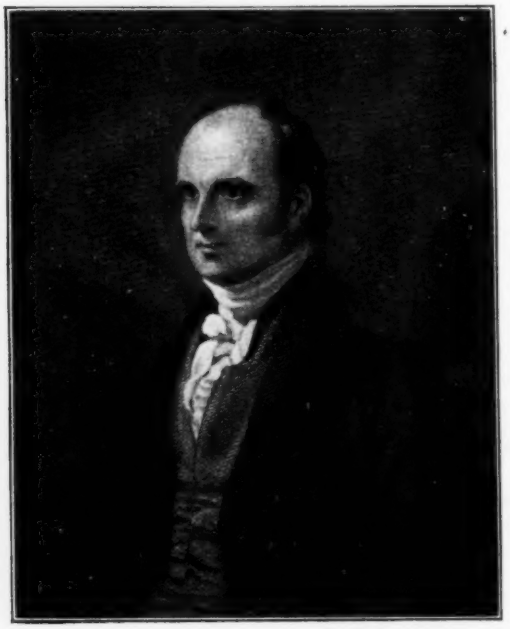


FIG. 11.—HENRY WARBURTON.

by a House doubly enlightened, first by Wakley's speeches and writings, secondly by articles which had received wide notice and had been reprinted from THE LANCET, and thirdly by a report on medical education which had been presented to the House about the same time. The Bill, as it stood, did no justice to doctors; their help, where sought, was not to be rewarded. This report came directly from the columns of THE LANCET, and was an attempt to find a constitutional remedy for the many undoubted abuses that were rife in medical training.

Henry Warburton (Fig. 11) an Etonian, a wrangler, and a merchant, was a considerable figure in the House, and may be regarded as a representative philosophical radical. He had moved for a Committee of Inquiry on the subject, when Wakley had not a seat in the House, but without THE LANCET the unanimous agreement of Parliament would not have been obtained for its appointment. It was THE LANCET'S ever-recurring and ever-varying revelations of the anomalies present in the system of medical education, persisted in for over a decade, uncontroverted and practically uncontrovertible, which finally bore fruit. In fact, Warburton's Committee was the result of the agitation in THE LANCET, which was supported manfully from without by the public press. The exclusiveness of the Royal College of Physicians of London, the tyranny of the Royal College of Surgeons of England, the pettifogging tactics of the Society of Apothecaries, these were weekly themes, and not bad samples of the weekly phraseology, and so pungently were they treated and with such disregard for the position or importance of the figure-heads in the various corporations, that everyone read the articles. They possessed the piquancy of their insolence and compelled attention from those quite innocent of any desire to see justice done to the medical profession. So that when Warburton asked the House to appoint the Committee, he appealed to an alert assembly wherein there was already a general feeling that some such inquiry ought to be made. He obtained what he wanted immediately. Wakley was personally responsible for Warburton's Committee, inasmuch as it was he who showed Warburton how to secure the evidence and what to look for.

THE GERM OF MEDICAL REGISTRATION.

THE LANCET had dissected the charters of all three of the London corporations, and had indicated what each body could do by law and what each body could not do by law, as well as what each body had taken upon itself to do by custom. Wakley knew where the law had been evaded, where it had been broken, and where it had been stretched, and in all those practices he knew when the result bore hardly upon the student and on the working of medical education. All this knowledge he placed unreservedly at Warburton's disposal, and its possession enabled that reformer to act with confidence and to steer his Committee with discretion.

The rulers in medicine were the men who had acquired a recognised university degree and, subsequently to graduating, had been elected to the Fellowship of the Royal College of Physicians of London. The Charter of this body was granted by Henry VIII. for the advancement of medical

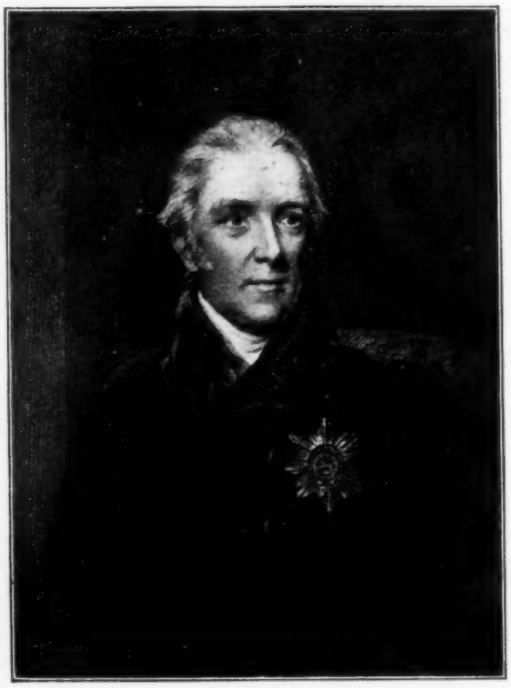


FIG. 12.—SIR HENRY HALFORD.

science and for the protection of the public "against the temerity of wicked men and practice of the ignorant," but time had imported into it restrictions and disabilities uncontemplated by the monarch or his advisers. The College was divided into Fellows, Members and Licentiates. The Licentiates paid fees to obtain a licence to practise within seven miles of the metropolis, but the College had little or no power to maintain the sad monopoly thus sold to them. The Fellows, frequently chosen it would seem with disregard for professional merit, had passed regulations for keeping their body select which were recognised by all as obsolete. No physician could be admitted as a Fellow unless he had graduated at Oxford or Cambridge, or had been admitted to a degree *ad eundem* at one or other of the ancient universities. This restriction carried another with it, for the graduates of Oxford and Cambridge were obliged at that time to be members of the Established Church of England, whence it followed that no dissenter could be a Fellow of the College of Physicians. The College also recognised for purposes of Fellowship those gentlemen who were privileged to call themselves doctors of medicine by direct licence from the Archbishop of Canterbury—M.D. Lambeth, and always called in THE LANCET "Divine Doctors." This was a very small class indeed, but it happened that at this very date one of them was the well-known obstetric physician, Sir Charles Mansfield Clarke. In 1823 the College consisted of 88 Fellows and 216 Members, and certain licensees, and, as will be seen from the figures, did not play a sufficient part in general medical politics to come much under the notice of medical journalism. The references to it in THE LANCET chiefly take the form of criticism of the courtier and physician, Sir Henry Halford, who occupied the Presidential Chair for 42 years (Fig. 12).

The position of affairs in the Royal College of Surgeons of England has been sufficiently indicated by the description of the agitation against its constitution, but it should be pointed out that the practice of midwifery and the dispensing of drugs were considered by the authorities of the College to mark the difference between the "pure surgeon"—to use the phraseology of the day—and the general practitioner. Out of this situation had arisen the Apothecaries Act of 1815, by which the Licentiate of the Society of Apothecaries obtained a definite position as a practitioner of medicine, while his governing body claimed for him a monopoly in dispensing. The Apothecaries Act had as its laudable object the prevention of prescribing and dispensing by unqualified persons, and secured its passage as a measure for the restriction of quackery, but it created incidentally a class of practitioner which could not easily be moved to call for reform. The Act, combined with the apathy of the Royal Colleges in the matter, led to the situation that many members of the medical profession in London and the provinces made no attempt to gain any other diploma than the L.S.A., and consequently were not personally interested in the great plans for reform which were just beginning to take definite shape.

FIG. 13.—JOSEPH HUME.

WARBURTON'S FAMOUS COMMITTEE.

When in 1834 Warburton moved for his Parliamentary Committee of Inquiry into the state of the medical profession, Joseph Hume supported him, holding up to ridicule the anomalies of the Apothecaries Act as affording proof of the necessity for someone to be present in Parliament to interpret medical matters to the legislature. The motion was agreed to without a division and an exceptionally strong committee was appointed. Warburton was chairman and was supported by, among others, Lord Howick (eldest son of Earl Grey, the Prime Minister and introducer of the Reform Bill), Mr. J. Abercromby (elected Speaker of the House of Commons in the following year), Mr. Halford (son of Sir Henry Halford, the long-established President of the Royal College of Physicians of London), Daniel O'Connell, Mr. Spring Rice (afterwards Chancellor of the Exchequer and Lord Monteagle), Joseph Hume, Lord Oxmantown (afterwards Earl of Rosse of telescope fame), and Sir Robert Peel.

Joseph Hume (Fig. 13), a political power in the House of Commons almost since his election for Weymouth in 1812, was later and for many years Member for Aberdeen, then one of the Members for Middlesex, and at the time of his death in 1855 was Member for Montrose. He was the oldest of a remarkable group of political reformers. He was the mover of the repeal of the corn laws, and an authority on all subjects of public expenditure. His deep interest in medical questions was due to the fact that he was educated as a medical man and entered professional life as a surgeon in the service of the East India Company. His rapid acquisition of languages and his organising qualities led to his appointment to important posts in India, so that he was able to return to England while still a young man with a considerable competency as well as a high reputation. If Wakley drafted the first Bill for the reform of the medical profession, it would not have received the immediate attention that it did, had it not been supported by men like Henry Warburton and Joseph Hume.

The Committee was appointed to take evidence on the following important and diverse subjects: Treatment of parochial poor; farming of sick poor; treatment in institutions supported by voluntary, life, and annual subscriptions; mode of appointing officers of such; appointments to gaols, asylums, and similar institutions; regulations of private lunatic asylums; the proper qualifications for masters in lunacy; the state of medical practice generally and its supposed effect on the public health; the practices of unqualified persons and quacks as regards public health and reputation of the profession; the public sale of secret remedies; the revenues of endowed institutions and the numbers of patients treated in them and the state of those patients; the mode of appointment of Navy and Army medical officers; the number of students attached to "chartered" hospitals and fees paid by them; the qualifications and legal rights of Fellows and Licentiates of the Royal College of Physicians and Members of the Royal College of Surgeons and of Licentiates of the Apothecaries' Company, the fees charged at the foregoing institutions and the manner in which such funds were appropriated; the system of medical apprenticeship; the status of chemists in regard to dispensing; the actual amount of wealth in possession of each of the chartered medical institutions; and the appointment of medical professors and court examiners at both the corporations and the universities.

The following were among some of the witnesses called: Cæsar Hawkins, Sir Henry Halford, James Copland, editor of *The London Medical Repository*, John Elliotson, the famous physician, later so damaged by dabbling in mesmerism, James Johnson, editor of the *Medico-Chirurgical Review*, and J. G. Guthrie (Fig. 14), three times President of the Royal College of Surgeons of England, Sir Astley Cooper, Sir Charles Bell, the famous anatomist and lecturer at the Great Windmill-street School, James Wardrop, Benjamin Travers, Benjamin Brodie, Richard Grainger, Joseph Carpue, William Lawrence, and Joseph Henry Green. The Apothecaries Company sent six special witnesses, and most of the private teachers, as well as Carpue and Grainger, had an opportunity of addressing the Committee. Prof. Macartney came from Dublin, William Hey, junior, of Leeds, and John Green Crosse, of Norwich, represented provincial surgery worthily, Profs. Christison, Allison, Abercromby, Poole Thomson, and Maclagan were present from Edinburgh. Glasgow, Aberdeen, and St. Andrews also sent witnesses.

All the evidence of these experts was printed in THE LANCET, explained and copiously annotated, so that both the House and the medical profession had a chance of learning the real need that existed for reform, not only from persons interested in altering the existent and corrupt state of affairs, but out of the mouths of those very heads of the profession whose rule had been so bitterly attacked by THE LANCET and whose rejoinder had been an invariable and stiff-necked assertion that things were very well as they were, and that the disaffected persons were either malicious malcontents striving to be important or their hoodwinked followers.

Wakley for ten years had made certain statements in THE LANCET. Now was the hour of his triumph, for witness after witness willingly or unwillingly confirmed these statements and made it clear to the country that medical reform was really required upon the very lines indicated by the journal which was by solemn agreement on the part of the London surgeons and teachers condemned as hopelessly wrong-headed and prejudiced. The country during the sitting of this Committee was no longer listening to THE LANCET, but to all sorts and conditions of expert testimony to the accuracy of the paper. Guthrie, for example, speaking on behalf of the Royal College of Surgeons, of which body he had been elected President for the first time in 1833, said that he considered the process by which the 20 existing members of the Council, or governing body, elected the twenty-first man to their body was an absurd plan, and that any other would be most acceptable. Immediately afterwards he added that no other plan would be satisfactory. He thought that surgeons should not dispense their medicine or practise midwifery, as anyone who gave time to such trivialities would have none left in which to acquire the principles of "pure" surgery; but he admitted that while only the non-dispensers could be chosen on the Council the power would be absolutely in the hands of 200 "pure" surgeons to govern 8000 persons, presumably as well educated as themselves—viz., the Members. He defended the system by which the ten senior men of the 21 councillors were examiners in spite of the fact that councillors were chosen for life, and that some of the senior men would therefore presumably be past their work. And he spoke well of the high rate of fees exacted from the London student. His evidence was printed at length in THE LANCET, much to his disgust, and proved in the clearest possible way that THE LANCET had not exaggerated during the past ten years when it described the Council of the College as "a self-perpetuating junto" and its educational scheme as

useless, giving as the reasons, first, that pharmacy and midwifery were not included in it, and secondly, that the examiners were not fit and proper persons. If these facts had been elicited before the Committee from Scottish or Irish teachers, jealous of certain of the advantages enjoyed by the London corporations, or if they had been insinuated by Grainger and Carpue, sore at the greedy opposition

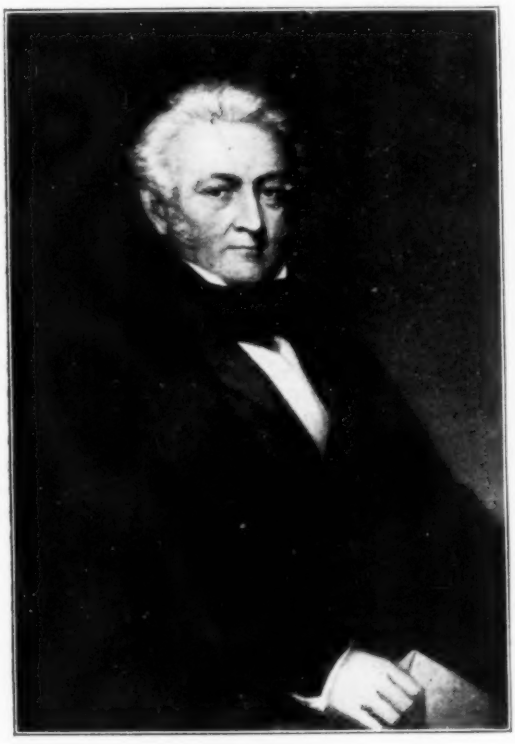


FIG. 14.—J. G. GUTHRIE.

offered by the College professors to all private tutorial enterprise, or if they had been advanced by Wakley himself, a known foe to the English College, the public might have looked with suspicion on the evidence as tainted. But Guthrie was speaking for the College—as the President of the College, in fact—in favour of keeping things as they were, and he satisfactorily convinced the Committee of the urgent need of reform.

It has been necessary to go back in the story to explain how useful the revelations in THE LANCET had been to the House of Commons. It was in a House in full possession of such evidence as this, taken before a Parliamentary Committee, that Wakley criticised Mr. Cripps's County Coroners Bill from a medical aspect. The House was prepared to believe that in matters of medical reform the honourable Member knew what he was talking about. He was listened to with attention and secured the approval of his fellow legislators for several amendments, chief among which was that the medical witness should be treated as an expert and should be paid at inquests one guinea for his attendance and another for making a post-mortem examination if directed to do so by the court. The Bill was afterwards rejected as a whole, but Wakley's prompt and successful employment of the first opportunity that had presented itself to him to watch over the interests of the medical profession in Parliament did not go without recognition at the time, while it led to practical results in the immediate future. He was publicly thanked by several medical associations. He was also begged to renew his endeavours in the next session of Parliament to obtain adequate remuneration for medical witnesses in the coroners' courts. Three months later the Bill became law.

The work of THE LANCET was now bearing fruit. Some of the abuses revealed in every direction were being met, and the feeling was growing that a general measure of reform was called for.

THE FIRST MEDICAL REFORM BILL.

In 1846 Wakley, having been elected for the fourth time Member of Parliament for Finsbury, brought in a Bill for amending the law relating to the practice of medicine in Great Britain and Ireland, founded on his experience gained as an editor. He had collected round him first all the men who had grievances in the profession, then a group of publicists who saw in those grievances a reflection of much in general affairs that constituted abuses, and lastly, many leaders of the medical profession who were convinced, sometimes unwillingly, of the need for reform. This Bill was Wakley's greatest Parliamentary work, and its indirect results to the medical profession were of incalculable good. Direct results it had not, for it never became law, but it led to the appointment of a select committee of sound, shrewd, important men whose deliberations resulted in the Medical Act of 1858. That Act fell short of the ideals put forward by many writers in THE LANCET, and endorsed by editorial views in the paper; but while it may be admitted that those views were more than occasionally visionary, and would certainly have much impeded the course of legislation by the opposition with which they would have been met, it may be recalled that future amendments of the 1858 Act have turned some of them into law.

Wakley's Bill was short and exceedingly clear, and the gist of it was to ensure that there should be accurate registration of the whole profession with strong penal powers capable of being set in motion against pretenders. It was, in fact, a Bill against quacks, but it was a measure for the protection of the public, and not for conferring undue privileges upon medical practitioners. It provided for the appointment of a registrar for each of the three divisions of the United Kingdom. It specified that his duties were to make, within 30 days of the passing of the Act, a list of all the properly qualified members of the medical profession resident in his division of the United Kingdom, whether by degree, diploma, certificate, or licence, and to these lists there were to be added, as fit subjects for registration, all persons who had been in actual practice as apothecaries since 1815 and all surgeons and assistant surgeons of the Navy, Army, or Honourable East India Company. In

accordance with such official lists, which were to be entitled the Medical Registers for England, Scotland, and Ireland, respectively, certificates were to be issued annually to all the names included at a fee of 5*s*. It may be noted that some 50 years later, when the pecuniary position of the General Medical Council was the subject of some anxiety, exactly this way of obtaining an annual income was proposed. Every person, thus duly registered, was to be entitled to practise in that division of the United Kingdom where his certificate was issued, and to charge for visits and attendance, and to recover such charges, as far as they were reasonable, in any court of law. He was to be exempt from serving on juries. None but registered medical practitioners were to be so privileged, and clauses were provided for the summary punishment of unregistered practitioners, whether detected practising without a qualification or with a qualification obtained by irregular means, while it was also made penal falsely to pretend to possess a qualification. The recovery of the penalties was simple and swift. The purification of the register—that is to say, the honour of the profession—was to be left in the hands of the various universities or corporations whose graduates or diplomates composed the profession. The three registrars were merely bound to register persons who possessed certain qualifications and who complied with the regulations by proving their ownership of the same and paying their fees. A name once on the register could only be removed by the authorisation of the body from which its owner derived qualification. The professional crimes which, if proved, warranted such authorisation were specified as "conduct calculated to bring scandal and odium on the profession by publishing indecent advertisements or pamphlets or immoral or obscene prints or books, . . . or any other disgraceful and unprofessional behaviour." The names of the convicted could be erased by the registrars. It will be seen that the penal clauses were open to the curious criticism that they proposed to confer on the very bodies whose irresponsibility to their constituencies were in question arbitrary power of a terrible sort. Wakley and others by name, and all the editorial staff of THE LANCET by implication, had been accused of bringing odium on the medical profession and of using indecent language. Many of them were in the Editor's case of deriving their professional status from the body most bitterly attacked. The Council of the Royal College of Surgeons of England, under Wakley's Bill, could have degraded these men, apparently with no power of appeal, to the position of quacks.

With regard to medical education, Wakley saw that a Bill which proposed "to distinguish between legally qualified physicians, surgeons, and apothecaries and mere pretenders to a knowledge of medicine and surgery," as the preamble bluntly put it, must enact that proper tests should be applied to candidates for a position on the register, lest the distinction between those included in and those excluded from the official lists should be one without a difference. After repealing the enactment establishing apprenticeship to an apothecary as an educational curriculum, the Bill set out a scheme of uniformity of education, qualification, and fees throughout the Kingdom. No details were suggested, the proposer knowing that the various views of the numerous bodies granting medical qualifications would have to be heard on the subject; but the principle of one portal to the medical profession, by which all practitioners were placed upon the same level at the commencement of their careers, was strongly insisted upon. In many future discussions on medical education the simplicity of the scheme of a State examination has won adherents for it, but the difficulties that would be introduced by its adoption have now become generally apparent.

THE LANCET scheme for medical reform led to the Act under which the General Council of Medical Education and Registration was created, and Wakley's efforts to raise the status of the medical profession in THE LANCET were during the intervening period devoted to the support of the principles laid down in his Bill. The majority of medical men, especially the better class of practitioners, saw in the measure an immense raising of their standard, but those of the consulting class were not ready with their support. They were not pressed upon by the unfair competition of quackery to anything like the same extent, and it was felt that their support would have been wanting at the critical moment. Anyhow, in spite of the popularity of the measure with the class whom it was designed to benefit, the Bill was not adopted by the Government, and Wakley accepted the suggestion that a Select Committee of the House should inquire into the subject.

Wakley's Parliamentary activities, it can be understood, helped both his work in Parliament and the profession of medicine, while the information supplied by the medical profession to THE LANCET helped him and his colleagues alike. But while the pages of the paper were thus fiercely political it would have availed Wakley little if he had not been at the same time publishing first-class scientific material. Neither natural zest for sensation nor abundant sympathy with the reforming spirit would have made THE LANCET a general success with the profession if the educational side of the paper had been neglected. Consultation of the issues of the journal during these years, up till 1850 or so, show how steadily the intention was maintained to advance the knowledge of medicine by publishing every week the best sort of medical information while abating nothing in the vigour of political articles, and, at any rate till the close of the indicated period, abating but little in the personal acrimony of the dialectics.

In support of the statement that the pages of the paper supplied the medical practitioners of the day with the latest scientific information, we may mention examples, sometimes sought for in the indices but far more often hit upon by chance or chosen at random, of outstanding communications dealing with the scientific side of medicine and with important relations between medicine and the public.

EIGHTY YEARS AGO.

EARLY CLINICAL COMMUNICATIONS.

THUS we find, ranging these comments roughly in chronological order, clinical lectures by Elliotson, Henry Earle, Charles Bell, Thomas Watson, and notably lectures on medical jurisprudence by John Gordon Smith, which were followed by a series of practical commentaries on Christison's processes for detecting poisons. All these men were prominent at the time, and some of them contributed in the manner indicated by their writings to the permanent

FIG. 15.—JOHN ELLIOTSON.

advancement of medical science. Elliotson (Fig. 15), physician to University College Hospital, and the dedicatee of "Pendennis," fell into disrepute later, because of his hankering after mysticism, but he was a famous clinician, and erred only by excess of imagination and a certain impatience of the obvious. Henry Earle, nicknamed by Wakley and his followers the Cock-sparrow, was an enlightened and progressive surgeon, and later a very good President of the Royal College of Surgeons of England. Charles Bell is, of course, the famous surgeon who discovered the function of the roots of the spinal nerves, and went from the Middlesex Hospital to occupy the chair of surgery at Edinburgh. "Bell's Paralysis" commemorates his name, while the "Anatomy of Expression," which is often quoted, reminds us of his artistic capacity. The contributions from Sir Thomas Watson, scholar and physician, were not numerous, but their existence should be recorded because his lectures in an expanded form became the most popular text-book on medicine between 1840 and 1876, when Bristowe's Treatise was issued, and to this day their teaching is often of the highest clinical value, while the writing will remain a model for all. Sir Robert Christison, professor of materia medica and forensic medicine in the University of Edinburgh, was the most expert toxicologist of his day, and did much to place his science on a firm foundation.

ENTENTE WITH FRANCE.

A good many of the cases recorded came from French hospitals, a close connexion between THE LANCET and the French medical schools having been instituted about 1830. For many years from the great charitable institutions of Paris there came to the pages of THE LANCET, supplied by the medical officers or translated by English students, short records of interesting cases, until about 60 years ago the first Paris correspondent of the paper was appointed, who was also the first regular foreign correspondent of the journal. In this way THE LANCET got into touch with Orfila, the founder of modern toxicology, who after ten years of work as professor of medical jurisprudence had been nominated Dean of the Faculty of Medicine at Paris. In the pages of THE LANCET there appeared translations of Orfila's work on the detection of poisons, the articles being accompanied by interesting notes of cases where Orfila's evidence had directed juries towards the finding of correct verdicts. Further, several members of the original staff of THE LANCET had done their clinical work in Paris, and when the courses of study at the London hospitals, or the anomalies of English medical education were the subject of discussion, the invariable habit of THE LANCET was to draw comparisons between what happened at the Paris hospitals or at the University of Paris and what prevailed in England. In this way

FIG. 16.—FRANÇOIS MAGENDIE.

a very close bond was set up between THE LANCET and French practitioners; French medical literature was reviewed in what we should to-day consider a cursory manner, but was none the less creditable to a weekly paper. As a result of this *entente* we find translations of excellent lectures on medical pathology delivered at the University of Paris by

G. Andral, many of Dupuytren's clinical lectures, and still more notably a long series of lectures by François Magendie (Fig. 16), the great French physiologist. The fame of Magendie may have been overlaid by that of Claude Bernard, but there is no doubt whatever that he was in his day one of the greatest physiologists. His lectures were translated into every language, he made discoveries in anatomy, and was an innovator in laboratory procedure, and the issue of his teaching in English form was both a progressive and useful movement. Dupuytren was the head surgeon at the Hôtel Dieu, a remarkable operator, who went round his wards daily with a crowd of cosmopolitan students at his heels. He was devoted to his profession, and left a considerable portion of the large fortune which he amassed to benefit a chair of anatomy at the École de Médecine.

FIG. 17.—ROBERT GRANT.

Mention of Andral makes an allusion necessary to the stress laid upon the subject of phrenology in the early years of THE LANCET. Both at this period and for some years to come this was perfectly natural, although later attempts have failed to correlate the doctrines of phrenology with the observations of modern pathology, and especially with localisation of cerebral function. The action of THE LANCET in booming Gall and Spurzheim was not a very successful piece of prophesy; none the less, those who love to trace among the developments in scientific medicine the activities of the alchemists will always hold the work of these observers and the principles of "cranioscopy" to have some logical connexion with the discoveries of Hughlings Jackson and Ferrier. Phrenology, at any rate during the first 40 years of the past century, had many highly scientific followers as well as some acute scientific critics, and Wakley's immediate supporters belonged to both schools. In Paris, Andral, whose lectures ran serially in THE LANCET for a year or two, and Broussais, whose work was more than occasionally referred to or translated, were immediate disciples of Gall, and favoured the progress of phrenology as a system of psychology without basing their faith upon the popular idea that the relative size of certain contours of the brain both dictated the shape of the external covering and the disposition for mental impulses. Elliotson was found on the romantic side in the controversy, but Bell and Brodie were strongly opposed to it, and considered it impossible to estimate brain development from skull shape.

Alongside these two famous Frenchmen were published in serial form Prof. Robert Grant's (Fig. 17) lectures on comparative anatomy and physiology, and Anthony Todd Thompson's (Fig. 18) lectures on therapeutics. Grant, who had been recently elected Professor of Comparative Anatomy at University College, and who had been elected F.R.S. as a comparatively young man, probably devoted too much time to teaching, so that although he was a companion of Darwin, and corresponded with all the great naturalists of France, Holland, and Germany, his original work hardly justified his popular name of the Cuvier of England, but his lectures in THE LANCET had a very favourable reception. Anthony Todd Thompson was also a professor at University College, his subject being materia medica and therapeutics. His career was a fine example of the development of the general practitioner, for in that capacity he joined the staff of the *London Medical Repository* under Copland. The series of lectures on materia medica and therapeutics in THE LANCET were practically a new shape given to previous work on the subject, and in a still later form became the substratum of the British Pharmacopœia. Thompson was a man of wide learning and practical outlook, and the publication of his lectures advanced the prestige of the paper.

FIG. 18.—ANTHONY TODD THOMPSON.

Other notable clinical lectures which appeared during the period were by Benjamin Brodie (Fig. 19),

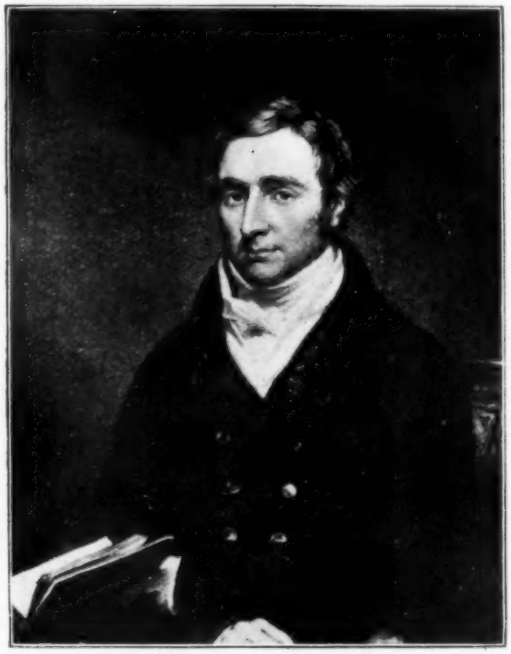


FIG. 19.—SIR BENJAMIN BRODIE.

Charles Bell, J. G. Guthrie, Thomas Wardrop, Benjamin Travers, and Robert Liston (Fig. 20). Their lectures were good examples of the teaching of the day, and their publication show that although the pages of THE LANCET were as critical as ever about hospital administration and the constitution of the corporations, the leaders of those corporations and the principal members of the staffs of those hospitals decided to allow their work to appear in the columns of THE LANCET. It may be thought that they did not so much allow their lectures to appear as that the law courts had made it difficult for them to take up the position that the lectures were their private property; but, as a matter of fact, they were, for the most part, real coöperators in the publication. First, they corrected the abstracts and résumés so as to perfect the words of their own teaching, but secondly, they found two things—that their material position as practitioners gained from the publicity, and that the comparatively novel habit of printing their lectures provided them with excellent material for more extended literary work. This was so in the case of Sir Thomas Watson, and in later cases, for example, in that of Erichsen, the skeleton of whose world-famous text-book appeared as a serial in THE LANCET.

THE CHOLERA EPIDEMIC OF 1831.

The subject of the greatest interest to the public and medical profession alike during all the period we are now discussing was cholera, which, having made its appearance in Europe by way of Persia and Russia some five or six years previously, spread through the north of Europe, and appeared in the northern parts of England in 1831. For some 15 months the disease prevailed in many of the large cities of Great Britain and Ireland, and the pages of THE LANCET are full of clinical accounts from which much can be learned even at this time as to the onset of the disease. The pathological considerations would not now be taken very seriously, but the attempt to find remedies must command respect. Every conceivable method of combating the disease by internal remedies, vegetable and mineral, by stimulation, by bleeding and depletion, by baths, by friction—all had their advocates. One fact is outstanding, and is so taken for granted that it is hardly ever alluded to—namely, that at a time of natural and deep apprehension the medical profession had done and would do its duty everywhere and anyhow in the face of the raging epidemic. The intimate connexion at the time of THE LANCET with French medical thought was well illustrated by a furious article against the dissemination by Louis Phillipe's Government of official cholera medals, 1000 in number, commemorating personal bravery during the epidemic in France. While the medical profession stood foremost among the proper candidates for such medals, the King's advisers placed upon the official list no hospital *internes*, few officers of

FIG. 20.—ROBERT LISTON.

public health or of the hospitals, few of those who had really assisted the medical profession, a number of bureaucratic and political personages, sisters of charity, and quacks, among whom is singled out by THE LANCET for special notice a M. Beliol, whose advertisements "to cure the itch, the tetters, and secret diseases are pasted on every wall in Paris." Prof. Magendie, to whom one of these medals was awarded, returned the decoration to the Ministry.

POPULAR JOURNALISM.

ILLUSTRATED BIOGRAPHIES.

IT is interesting to note that two methods which have over and over again been adopted by lay papers for the popularisation of their contents were hit upon by THE LANCET in the early thirties—namely, the publication of biographies of living persons of distinction or official position, and of open letters to similar persons.

The first series of "medical portraits," as the biographies were called, started in THE LANCET in 1833, and was a ruthless piece of writing. The subject selected was Sir William Blizard, "the testy knight of collegiate scowl and hospital vulgarity." Sir William was terribly old—older than the lithograph here reproduced (Fig. 21) would suggest, and a glance at his portrait on p. 696 will show that he had been a handsome man. It might have been thought that his age entitled him to compassion, but it must be remembered that it was exactly his age, coupled with his positions at the Royal College of Surgeons of England and the London Hospital, which constituted his chief offences. It was part of the general compaign of the paper against the constitution of the College and against the scheme for the education of the medical student that the power had got into the hands of old people, who proceeded to instruct and examine the students without any familiarity with existing facts. Sir William Blizard must have been nearly 90 years of age when his portrait and biography appeared in THE LANCET, and appended to it were notes of his teaching in the wards, which were intended to expose his senility, and which succeeded in so doing. Here is one of the notes:—"Sir William (*turning to a case of diseased testis*): 'When I took this case in I thought it was scirrhus epididymis. What are the diagnostic marks of scirrhus? Well, I will tell you. Its peculiar hardness and a sense of specific gravity. I have blistered this, and I dare say when the blister has healed the man will be quite well.'" The suggestion of THE LANCET was that such teaching was worse than worthless, for it conveyed no accurate information and made the recipient feel that he was the intellectual superior of his instructor. The writer described such teaching as "a sorry spectacle," and devotes a column and a half to indicating that by birth and education nothing better could have been anticipated, and that if at any period in the unfortunate knight's career he had given evidence of higher things he was now too old for more to be expected.

Among the other biographies which follow, and which are all of them very frank and many of them uncomplimentary, there is an excellent one of Sir Charles Bell illustrated by a sketch drawn in the theatre of the College of Surgeons while Bell was lecturing, and there is also a dramatic portrait accompanying some notes on the career of that singular Frenchman, M. Clot. Clot was a Marseillais, and took his degree at Montpellier. He went to Cairo on the invitation of the Pasha of Egypt in 1831. Under the Pasha he organised a system of medical education on European principles at Abouzabel, near Cairo. Here he lectured on anatomy, physiology, and surgery, and added to the buildings a maternity clinic in which "the art of accouchement is taught to negresses and Abyssinian women." Partly because M. Clot was really a competent surgeon and a remarkable man,

FIG. 21.—SEMI-CARICATURE OF SIR WILLIAM BLIZARD.

and partly because the Viceroy or Pasha of Egypt held him in high admiration, he obtained a large practice in Cairo and a more or less European reputation. The accompanying portrait is described in THE LANCET in the modest language of the day as one "possessing great fidelity, the features of the expression of the Bey being delineated with much facility." (Fig. 22.)

Other persons to be commemorated were William Lynn and John Elliotson, but the first series of medical portraits was not a long one, and gradually they were discontinued to be reintroduced in a different vein some 15 years later. The biography of Elliotson is appreciative, but that of Lynn is an indictment of the famous lithotomist as a vain and garrulous old man, even while doing justice to his work as anatomist and surgeon.

"INTERCEPTED LETTERS."

A series of amusing and scurrulous communications, entitled "Intercepted Letters," enlivened the pages of THE LANCET for some years, beginning almost simultaneously with the illustrated biographies. The idea of writing them has been attributed to Wardrop, and there is some internal evidence that he actually wrote several of them, but Wardrop would only have been following

FIG. 22.—SEMI-CARICATURE OF CLOT BEY.

precedent. The opportunity for topical criticism and indiscreet comment offered by such contributions had made them a popular weapon in the hands of provocative journalists, while the code of manners in the reign of William IV. was not that under which we live to-day. The great master along this line, "Junius," it will be remembered, addressed his victim directly, whereby only one person was attacking and, for the most part, only one person was attacked. The "Intercepted Letters," as they appeared in THE LANCET, gave greater opportunities, though the concentration was lost, because the correspondence was usually as damaging to the person from whom the letter purported to come as to the person who was described as having received it.

Two examples may be given of these Intercepted Letters. The first is addressed to Sir Benjamin Brodie, at that time becoming a prominent member of the Council of the Royal College of Surgeons of England. It is very long and commences as follows:—

"It is of first-rate importance that you ride the President of the College with a sharp bit."

The letter continues:—

"Pray tell me with your wonted candour if Macleod has applied to you for any more subscriptions. I am so disappointed at the want of anything like talent in his journal that, for myself, I will pay no more. After all, what a world this is. Its events may be a comedy to some, but to most of us, my dear friend, they are a tragedy. I took much pains to aid the *Gazette* at starting, and I distributed hundreds of the prospectuses amongst all sorts of persons, particularly the bishops and top apothecaries. Nay, you may remember that so far did I go as to have one placed in each plate at the first dinner I gave after its publication was announced, and told the surgeons and physicians who did me the honour of eating with me on that occasion, that at last they had a journal which they *could* read, and I hoped they would warmly support it. Yet what good has all this done? Why a reform in the profession seems close at hand, in the teeth of Macleod and his assistants. By the by, I hear that Macleod denies to some people that he any longer edits the journal. Tell him, if he persists in that statement, not to be seen entering the assistant fabricator's house so frequently, since for the sake of secrecy he has removed his papers to that quarter.

I further hear a report that Mr. Travers has shown a disposition to cut us. Gracious Heavens. Who next? Let someone go to Bruton-street and ascertain what is the fact. It can hardly be true. Where the inducement? He would gain no credit on the other side. The revolutionists would not have him at a gift I suspect. So the dear Prince at Kew is going to Berlin. What a sad compliment to the eye-doctors of London. We managed well, I think, to keep Wardrop from being called in, though it would almost have been better to allow that than lose the family altogether for so long a time. Graefe paid the English druggist the compliment of taking much medicine with him for the Prince. A friend of mine told me that he saw a mahogany chest full in the Baron's house at St. James's. I have time to say only how devotedly I am

Yours,

* * * * * * * * * * * *

Leicestershire, Sept. . . . , 1843.

PS.—Can it be *our* Lockley that was examined at the low inquest which I saw reported in the papers to-day? Surely he does not accustom himself to attend such vulgar proceedings when he has seen the case before death. The hospital surgeons never go, though the deceased may have died under their hands. They always send the ward sisters, or the dressers. Has Lockley no apprentice?"

This letter, of course, teems with insults, from its first suggestion that the President of the College of Surgeons was supine, to its last that Fellows of the College of Physicians could have nothing to do with inquests. The letter is signed with five asterisks followed by seven asterisks, the suggestion being that it is written by Sir Henry Halford, President of the Royal College of Physicians, whose position at Court was made the subject of constant and cruel reference. The *Gazette* in question, is Dr. Roderick Macleod's *Medical Gazette*, which at that time was very critical of THE LANCET, as indeed it might well be, seeing that the following open message had just been sent to Macleod in an editorial article. "Enough of this; there are brutes that are not worth the lash of ½*d*. whipcord." Dr. Macleod was assisted by Halford and others in bringing out his paper with a mission to counteract the disrespectful poison disseminated by Wakley.

The second "Intercepted Letter" is quoted as showing the extraordinary liberty, not to say licence, which characterised the columns of a scientific journal of the day. Here it is made perfectly clear whose letter is supposed to have been intercepted, for it is dated from ——— Hall, Leicestershire, is signed H. H., and the page on which it appears is headed "Sir Henry's Medical Affairs." Sir Henry Halford, whose original name was Vaughan, had taken the name of Halford on succeeding to a Leicestershire property, and the libel is unpardonable:—

"DEAR DR. TURNER,—None but a man endowed with a sentimental mind like your own can enter warmly and feelingly into my present position; and I do assure you, my dear friend, that the quietude and repose of the country, after all I have gone through—all the mortifications and annoyances I have suffered during the last London season—is quite a balm to my troubled mind. I am indeed glad to get something to occupy me apart from my wonted habits and avocations, and though it may appear ridiculous to you, I do assure you it is true that the little annoyances which are inseparable from the life of a *country squire* do me good. When I am brooding over the downfall of professional legitimacy or the questions of the Parliamentary Committee, I am absolutely not sorry, even if my bailiff comes to tell me that my sheep have sold for less money than they cost six months ago; or my gamekeeper to say that a hoard of poachers have murdered all the game; or my groom to announce that my favourite riding horse has broken both his knees. I would say on the principle that guides us on the treatment of diseases—the principle of *revulsion* of *diversion*—that all these things do me good; and a good practice it is too to put a blister on a ladie's coccygeal region, when she complains much of her head.

I hope you are keeping a sharp look-out after my patients during my absence; and when I take my next run up to town, the more of them you can get to meet me in Curzon-street the better, as I will remain only one day. Never fail to tell everyone of them that in all my letters I particularly mention *their* names and make many inquiries about the progress of their particular case, and how the last prescription agrees with their constitutions. As I always take care that they consider my knowledge of their constitution minute and comprehensive, it is of importance that you strengthen that notion; for during an experience of nearly 40 years I have ever found that nothing makes patients less likely to employ another medical attendant than the notion of the ordinary one—knowing their *constitution*. You can easily let anyone suppose that I am obliged to go to Windsor occasionally, as that will appear a good excuse for my being a day in London. The last accounts I received from the Castle were not very cheering. There is, indeed, nothing to be done there in the way of business. The King is wonderfully well; and in place of stuffing and cramming his stomach with all kinds of trash, and then taking physic and getting me to unload the machine, like his late brother, my kind and ever to be lamented friend George IV., he lives most regularly, moderately, and soberly, and has *no complaints*. It is unfortunate for us, at this moment particularly, that he has a low opinion and such a dislike of physicians. He has abided by a determination which the Duke of ——— told me that he heard him express when he came to the throne, that he 'would be d——d if he would make an apothecary's shop of his guts, as his brother did.' He has a quite sensible surgeon living in the palace, so that if the least things go wrong, if any screw be a little loose, there he is in readiness. That is not right by any means. As to our gracious Queen, my Windsor correspondent writes me word that she has become a convert to the homœopathic system and is now under the guidance of a German doctor who is giving her (I suppose because she is a Queen) only the ten-thousandth part of a grain of some of his nostrums. Her little homœopathic medicine chest with all its little bottles is a nice little toy to amuse her. Lord Howe watches the effects of these wonderful millionth fraction pills, and I have never been nor am I likely ever to be consulted by her.

I have got the periodicals regularly. I need not conceal from you, my worthy friend, that I am grieved and vexed to see extracts of my examination before the Committee printed in THE LANCET; and had I not been taken partly by surprise, and lost my temper somewhat during the examination, I should not have said so much, and attempted to show that the cause of our not making Fellows of the Licentiates was the defective moral character of the Licentiates. I confess it was a sad blunder on my part, to say in public that while we encouraged the Licentiate to practise midwifery, we considered it beneath the dignity of a Fellow to touch such things.

Write to me anything that you hear is going on in Pall Mall, Blackfriars, or Lincoln's Inn Fields. I intend writing to Sir Astley about some vexatious things which I have heard respecting the certificate system. It cannot go on. How do little Benjamin's honours sit upon him? I long to see *her ladyship*. Is it true that he has got a carriage in imitation of mine?

Write me everything; and put your letters under cover to my son, which will save the postage.

Yours faithfully,
H. H."

"Little Benjamin" is Sir Benjamin Brodie, whose small stature is made a subject of frequent reference, for he is generally alluded to as the "little eminent."

ILLUSTRATED BIOGRAPHIES: A SECOND SERIES.

The second series of biographical sketches commenced with a life of Marshall Hall, to whom THE LANCET in its early days owed much. All the great observer's extensive work in chemistry, physiology, hæmatology, and neurology was published in THE LANCET as it appeared from the time when he took up his residence in London in 1826. A synopsis of the spinal system in a series of lectures by Marshall Hall provides another good example of famous work which first saw the light in the columns of THE LANCET at this epoch. (Fig. 23).

Hall was at this time no longer a young man, for he had graduated in medicine some 40 years earlier, and had made his name both as physiologist and physician in quite other fields before he did his illuminating work on the nervous system. His researches were not appreciated at first at their true value. At the time of his death in 1857 he was engaged in preparing for publication in THE LANCET a précis of his life-work, but in essentials that story is written in the columns of the paper to which he was so constant a contributor. In the biography opportunity is taken for an indictment of the Royal Society for the prolonged neglect of Hall's claims, when one cannot but feel that Hall might have been embarrassed by the methods employed. Failing any public or official recognition of Hall's work, the following suggestion was made which is worth quoting in view of the institution of the Order of Merit by the late King Edward VII.

While the leaders of our armies and navies, our statesmen, our lawyers, our divines, receive the highest honours of the State, the cultivators of science, and especially of medical science, requiring the very highest order of mind, are comparatively neglected, and often forgotten. These things require reform. There ought to be an Order of Merit instituted, to which only the really meritorious should be able to attain. It might be in one class or in different classes, according to professions, &c. This Order of Merit should rank higher than any mere hereditary honour; the possessor should be entitled to wear a distinctive decoration.

It is interesting that while the scope of the modern and most distinguished Order should have been prophesied in the words "only the really meritorious," the title of the Order should have been exactly indicated 70 years ago.

The next biography is that of Henry Clutterbuck, a contemporary of Lettsom, and therefore nearly 80 years old at the time the memoir was published.

He was in the forefront of the proceedings of the Medical Society of London, of which he was three

FIG. 23.—MARSHALL HALL.

times president, but it was his action, none the less, which led to the schism in the Society, resulting in the founding of the Royal Medical and Chirurgical Society, itself the parent of the Royal Society of Medicine.

Another biographical sketch was that of Bransby Blake Cooper, now senior surgeon to Guy's Hospital, in which ample justice is done to Cooper as a surgeon, and particularly as an anatomist. The lurid circumstances which led to a libel action against THE LANCET are only alluded to in these words: "The absence of animosity on the one part, and the kindly feeling on the other, preclude the necessity of dwelling on a subject which must be equally painful to both parties."

An interesting biography is that of Sir James M'Grigor, Director-General of the Medical Department of the Army, in which the ideal of the Army surgeon is placed very high when it is said "his duty is not to treat individual cases of disease, but to deal with the causes and prevention of large classes of disease." A letter from the Duke of Wellington is included, in which the Duke, not a "gusher," states of Sir James M'Grigor "I consider him one of the most industrious, able, and successful public servants I have ever met with."

Short biographies of Sir William Burnett, Director-General of the Naval Medical Service, and Prof. R. E. Grant, professor of comparative anatomy and zoology at University College, London, are among those that follow, and all the character sketches lay stress on the eminence of their subjects. Some correspondence accordingly took place, questioning the discretion of the Editor in publishing eulogies of living men. For the eulogies did not make the rollicking reading which was furnished by the old libels. For the most part the people were too well established in their position to gain any unfair professional advancement by the public notice given to them, but the series, which was intended to include 100 names, was soon dropped. Benjamin Travers, James Sime, Robert Lee, and Sir William Fergusson were among the last, the series actually closing with an interesting biographical sketch of Sir Charles Hastings. (Fig. 24.) The portrait reproduced will be recognised as that which is so familiar to us on the cover of the *British Medical Journal*. Hastings was the founder of the Provincial Medical and Surgical Association, and received in his efforts regular assistance from THE LANCET. He was a practitioner at Worcester, and physician to the hospital, and he published, with the assistance of personal friends, the *Midland Medical and Surgical Reporter*, a quarterly periodical in which he expressed the intention of publishing notes of interesting cases from provincial hospitals, so as to extend, for the benefit of general practitioners, knowledge of disease treated in the institutions. From this movement arose the Provincial Medical and Surgical Association, which held anniversary meetings with such success that in 1840 it was decided to issue a weekly publication, the *Provincial Medical and Surgical Journal*. The Association later became the British Medical Association, and the journal took the name of the

FIG. 24.—SIR CHARLES HASTINGS.

British Medical Journal in 1857. The work of the *British Medical Journal* has been for so many years and in so many places running parallel with the work of THE LANCET, and the objects of both journals in separate ways have so often been identical, that no notes on the career of THE LANCET would be complete without mention of the great journal whose life has been lived side by side with us. The intention of Hastings to distribute to general practitioners information from metropolitan centres was exactly identical with one of the reasons for the foundation of THE LANCET, and all the efforts of the Provincial Medical and Surgical Association were warmly greeted in THE LANCET. For some years the Association was satisfied with the issue of an annual volume, but in 1840 the *Provincial Medical Journal* was started, and with certain modifications in title ran for 16 years, when, by unanimous vote at the annual general meeting of the Provincial Medical and Surgical Association, the title of that body was altered to the British Medical Association, and its official journal became in the following year the *British Medical Journal*. That is a pedigree of antiquity for any journal, but if direct descent of the *British Medical Journal* be allowed from a quarterly periodical, the *Medical and Surgical Reporter*, the date of origin can be thrown back four years, while certainly the *Medical and Surgical Reporter* was edited by Sir Charles Hastings. In 1866 Ernest Hart left THE LANCET and was appointed editor of the *British Medical Journal*, thereby leading to a break in relations hitherto friendly, but the ill-feeling was so entirely personal that when the leaders left off quarrelling peace was restored. As time went on, our great contemporary grew with the growth of the body whose views it represents, and while the increasing energies of the British Medical Association necessitated the publication in its organ of notices, agenda, and reports in connexion with its committees and branches, these committees and branches became the natural medium for putting into effect many of the movements which had been and were being advocated by THE LANCET. In a short time the ill-feeling engendered by Hart's transference of his services from one paper to the other died down, and those who are at present in control of THE LANCET, though not conspicuously young, are not old enough to remember when anything but good feeling prevailed between those responsible for the conduct of the two journals.

THE LANCET IN THE 'FIFTIES.

THE death of Thomas Wakley occurred in 1862, until when he remained his own editor-in-chief nominally, but as a matter of fact he had taken but a supervising part for some years, his youngest son, Dr. James Wakley, having come straight from graduation to assist his father in 1852. There was consequently no change in the general policy of the paper, and no overt change in editorship. It was left for the son on the one hand to continue the work which had been begun by his father, and on the other to develop that work and also to initiate new activities as a progressive profession demanded their exercise.

When the first Thomas Wakley died it was publicly claimed for him not only in the columns of his own paper, but also in many other places, that he had started principles of reform and in large part secured their realisation. Thus, and above all, had been advanced the status of the medical practitioner, while there were conferred upon medical science, and therefore on the public, the conspicuous advantage of proper opportunities of development in divers directions. Wakley fought the battle of the medical student and the general practitioner at a time when universities and corporations seemed to regard both as persons who should pay fees but whose interests were otherwise of no consideration. He exposed impostors and denounced quackery, while he published medical information which would otherwise have been entirely lost, doing so in the first instance at considerable pecuniary risk, if not in defiance of the law at the time.

So much we hope has been shown.

A CRITICAL PERIOD.

A critical period in the history of THE LANCET was reached by the year 1850. The paper had now been established for more than a quarter of a century and enjoyed a reputation for soundness, frankness, and large endeavour, which had spread over the country and upon the continent. Stress, it must be confessed, should be laid on the word endeavour, for leading editorial pronouncements, backed though they were now with the names of eminent persons, were apt to foretell immediate reforms in large directions where either the reforms did not follow or followed to a degree incommensurate with the promises made. At the same time the paper had become assured in its high standing; and while the signing contributors to its columns included many leaders of the medical profession, the editorial staff was known to be recruited from among them or their inevitable successors.

A few prominent contributions are again mentioned to show the endeavour of the paper to keep its public scientifically informed. Lectures by Sir John Simon (Fig. 25) on general pathology provided readers with what was badly needed at the time—namely, a definition of pathology, a scrutiny of its scope and interdependence upon other ranges of knowledge, and a summary of its achievements at the time. Simon is so well known as the father of sanitary science that we are apt to forget that his magnificent labours in the cause of public health were prefaced by pathological work which had been rewarded by the Fellowship of the Royal Society when he was quite a young man. The portrait shows him at the end of an extremely long life. His penetrating survey of pathology, written when he was already a medical officer of health, brought him in 1850 in close touch with the group of men who founded the Epidemiological Society. The objects of that Society were "to study the causes which lead to premature death and preventable disease and to advise administrative bodies

THOMAS WAKLEY, M.P.

Founder of The Lancet

From an unfinished sketch by Edwin Landseer

thereupon," and how Simon, as administrator, carried out this programme upon his appointment as first medical officer of health to the Corporation of the City of London, and later as first medical officer to the Privy Council, is a matter of notoriety.

Another valuable set of clinical lectures, running simultaneously, consisted of a series of surgical cases recorded by John Erichsen. This formed a scenario for the great work on surgery, which

FIG. 25.—SIR JOHN SIMON.

was the most popular text-book on that science for more than 30 years after its first appearance in 1853, when it superseded Samuel Cooper's "bible of surgery." Erichsen's "Science and Art of Surgery" was avowedly written to form a text-book in fuller explanation and exposition of his clinical lectures, and this is the reason why, in its first shape, certain sections of surgery were not included. They were sections on which he himself had not delivered clinical lectures. The last edition of this work was published as recently as 1895, edited, in a form now much altered by necessary additions and revisions, by the late Marcus Beck and Mr. Raymond Johnson.

ORGANISED MOVEMENT AGAINST TUBERCULOSIS.

Two movements should be noted as receiving particular prominence in THE LANCET between 1850 and 1860 because of their permanent bearing on medicine, and because the views on the subjects which can be found scattered throughout the pages of the journal show that certain of the difficulties which are still with us were realised in those early days. In 1850 there appeared the first medical report of the Hospital for Consumption and Diseases of the Chest at Brompton. It is a brief abstract of a brief document, but it shows how modern our grandfathers and even our great-grandfathers were in their grasp of the circumstances. The cause was hidden from them, as it was from us for 30 further years, but on the contributory influences to the spread of tuberculosis they were wonderfully clear and well informed. Simon's annual reports, which cover the years between 1848 and 1855, are admitted to be a landmark in the history of sanitation, and these systematic surveys of the general sanitary circumstances of the City of London ventilated questions of housing and other social conditions of the labouring classes whose relation to tuberculosis was immediately seen by the group of medical men who first faced the special problems of the disease.

The statements in the first report of the Brompton Hospital for Consumption were deduced from an analysis of 4000 cases arranged under three heads, the first containing observations on the influence of sex, age, social condition, occupation, and hereditary predisposition, the second dealing with symptomatology, and the third with the results of treatment. The conclusions on the influence of sex immediately contradicted the wide impression that females showed a greater liability to phthisis than males; the influence upon the figures of occupation and social conditions—trades, occupations, and so forth—were reinforced with excellent tables, checked by the records of a general hospital for the sake of comparison; and the incidence of phthisis was noted upon those who were compelled by occupation to work in close, ill-ventilated, and over-heated rooms, to sit for many hours each day in a posture unfavourable to the free action of the muscles of respiration, to breathe an impure atmosphere, and to forgo exercise in the open air. We may be certain that the memory of Hood's "Song of the Shirt," which had appeared in *Punch* some ten years earlier, decided the particular reference in THE LANCET to the plight of seamstresses, with regard to whom it is stated that they formed one-fifth of the total number of female patients at the Brompton Hospital. The results of treatment at this date could do little more than indicate that the disease was arrested in about 12 per cent. of the males and 7 per cent. of the females, the value of the figures being, as we now know, nil, for nothing was said as to the stage of the disease on admission, the evidence relied upon to prove arrest, or the duration of that arrest. The absence of any successful course of remedial treatment was remarked upon by one Dr. Francis Ramage in uncomplimentary terms because the hospital did not adopt an inhalation apparatus as devised by himself. The appearance of a long letter by him in the columns of THE LANCET was a little remarkable as, some 20 years before, when the famous quack, John St. John Long, was placed in the dock at the Old Bailey charged with manslaughter, Ramage defended Long's methods. The exertions of THE LANCET had brought this surprising adventurer, whose pass-book testified to the imposing income of £13,000 a year, into an awkward position and

secured a verdict of manslaughter against him. And when Ramage, an M.D. of the University of Oxford and a Fellow of the Royal College of Physicians of London, commended Long's treatment in the columns of the *Sunday Times*, THE LANCET said that Ramage had placed himself outside the pale of the profession, and the Medical Society of London expelled him from their body. Dr. Ramage brought an action for libel, obtained a farthing damages, and remained critical of the methods of this paper henceforth.

THE TREATMENT OF INSANITY.

The second movement to which constant allusion is made throughout this period was one directed towards the more intelligent treatment of mental disease. The subject gained prominence by the starting of a testimonial to John Conolly (Fig. 26), the asylum reformer, whose work at Hanwell had been favourably noticed when many quite humane persons considered it too revolutionary. Conolly's was an interesting career. He began as a soldier, became a medical student in France, and graduated in Edinburgh, presenting a thesis upon insanity. For a period, however, he seems to have lost his interest in psychological medicine, practising in the provinces, and taking up municipal work. But shortly after the foundation of THE LANCET we find him in London as professor of the practice of medicine in University College, the nucleus of the University of London, and during his term of office he published a work entitled "Indications of Insanity." Later he left London to hold the post of inspecting physician to certain provincial asylums, and he was subsequently appointed resident physician to the Middlesex Asylum at Hanwell, then the largest institution of the kind in England. His lectures in THE LANCET detailed the modern methods of therapeutics, and were republished in a volume which was widely read. A rational system of treating the insane, instituted in France, had been in practice for some years under William and Samuel Tuke at York, and Charlesworth and Hill at Lincoln. Conolly, when he took charge of the Hanwell Asylum, removed every form of mechanical restraint, and during the 12 years during which he was the head at Hanwell a revolution was effected in the treatment of the insane throughout the country. He created in this short time a fervour for reform amongst the public, which took effect later in THE LANCET, when, as a sequel to the Analytical and Sanitary Commission, an inquiry into the conduct of lunatic asylums was set on foot.

THE CONDUCT OF LUNATIC ASYLUMS.

A further inquiry was made by THE LANCET into the conduct of lunatic asylums in 1875, which it will be convenient to tell of now.

The purpose of this inquiry was to ascertain the general character and adequacy of the material provision made for the insane in asylums and the conditions of their daily life, but it was also hoped to collect and collate statistics of cases where the history went back as far as ten years so as to estimate the results of treatment. Lastly it was definitely set down as an object of the inquiry "to discover measures and as far as may be possible to formulate a system of treatment adapted for the cure of remediable or recent cases and the relief of chronic or incurable cases." The inspection of lunatic asylums promised under such a scheme met not only with approval but with promises of coöperation from certain medical superintendents

FIG. 26.—JOHN CONOLLY.

and officers of asylums, and it is probable that Henry Maudsley was the actual originator of the plan to be followed. But the inquiry came to little, James Wakley having for once failed to find the right lieutenant.

The investigations were entrusted to a curious and able man named Mortimer Granville, and the choice was not a happy one. Granville, who had not for many years been in actual medical practice, was an industrious and facile writer and had attained a considerable position as a political journalist, editing for a time one of the big London evening papers. He proposed himself to Wakley as able and willing to write the articles and to have them supervised, but he did not disclose the fact that for his political services he had been promised a Home Office appointment, and that his selection to make an independent inquiry for THE LANCET would probably speed his selection. But Maudsley became aware of the fact and withdrew his support of THE LANCET inquiries, evidently believing that the paper was privy to an intrigue for the personal advancement of one of its contributors. The case was cleared up, but THE LANCET inquiry into the conduct of lunatic asylums was a failure. Granville ceased to be on the staff of THE LANCET, but had

for a considerable period great success with the public as a consultant physician.

The reports on the County of Surrey Asylum at Brookwood and the Middlesex County Asylum at Hanwell are distinctly valuable documents. The criticism of the building at Hanwell as it was at that time must have been quite useful to all who were working for the improvement of the treatment of lunatics. The building is described as a vast and straggling one in which "the characteristics of a prison, a self-advertising charitable institution, and some ambitious piece of Poor-law architecture clamour for precedence. The gates are kept by an official who is attired in a garb as nearly as possible like that of a gaoler. All the male attendants are made to display the same forbidding uniform. Whether the justices of this county are especially proud of their livery it is not for us to determine, but in the name of commonsense and humanity we must warmly protest against the weakness of parading it perpetually before poor creatures whose only offence is their misfortune, and whose distressing malady should deter governing authorities from obtruding what is, beyond all question, a source of irritation. County asylums are now most unwisely treated as depositories for ex-criminal lunatics, and even prisoners who have become insane before the expiry of their terms of confinement. One of these morbid miscreants in a ward will make the uniform known to the ordinary inmates, and all idea of homeliness is immediately transformed to a depressing sense of imprisonment; while that large class of lunatics who are partly insane and partly vicious instantly take to prison practices, and readily become imbued with the pestilent doctrine of criminal lunacy, that being insane, they may do wrong with perfect impunity." The report acknowledged that the Committee of Visitors at Hanwell were doing much to improve the conditions of life for the lunatics, but gave the impression that the particular reform which was to have been advocated—namely, segregation of commencing cases—was badly needed.

THE ANALYTICAL SANITARY COMMISSION.

No activity in the columns of the paper ever caused so much public attention as the institution in 1851 of THE LANCET Analytical Sanitary Commission. We must retrace our steps in order to tell an unbroken tale.

Incontrovertible evidence had been gradually accumulating that the popular belief in the prevalence of food adulteration was based on fact, and advances in microscopy and analytical chemistry, which were referred to in scientific articles without any particular reference to foodstuffs, suggested that weapons had recently been furnished which would enable an effective attack to be made upon the adulteration, sophistication, and substitution which were undoubtedly taking place in many quarters. It was decided by THE LANCET to issue the results of microscopical and chemical analyses of the foodstuffs, solid and fluid, in general consumption. The labour implied in such an inquiry, if it was to be undertaken with proper thoroughness and security from error, and if its range was to be so large that the great public benefits anticipated would be secured, made cautious members of the staff reluctant to undertake so brave a departure, and, as a matter of fact, the institution of the campaign hung fire for a year or so. But during that year new facts were obtained and new evidence was collected in directions which had been foreseen in constant references made by the paper for 20 years to certain commercial practices.

On many occasions the first Wakley showed himself to have real journalistic *flair*, and this is a case in point. The fact of the Great Exhibition of 1851 being held in London decided him to start the movement for ensuring a pure food-supply at a time when the metropolis and its neighbourhood were certain to be densely crowded, when catering would be disorderly, and when a prevalence of high prices would lend pressing invitation to dishonesty. Accordingly, in the grandiloquent style of the period, he opened his agitation in favour of legislative reform with the statement that THE LANCET would now undertake—

> "a task large enough to engage the attention of the Government of this country. With the exception of officers to observe and report upon diseased meat or fish, the public authorities take no cognisance of the adulteration and poisoning by the slower, but equally sure mode of adulteration of food and drinks. We will bring the microscope and the test-tube to bear with unerring truth upon things hidden and secret enough to the unaided senses, for the protection of the public, the advantage of the fair trader, and the ultimate exposure and punishment of the fraudulent one."

This sentence formed a general introduction to the new inquiry. The preface to the series of articles issued under the generic title of "THE LANCET Analytical Sanitary Commission" further defined the scope of the proposed inquiry as an attack upon prevalent methods of adulteration so thorough and uncompromising that it would frighten individual evil-doers out of their ill-behaviour and open the eyes of Parliament to the necessity for State interference. "Boards of Health and Commissions of Sewers," said this preface, "have been appointed by Government, but there is no State protection of food":—

> "We propose, then, for the public benefit to institute an extensive and somewhat vigorous series of investigations into the present condition of the various articles of diet supplied to the inhabitants of this great metropolis and its vicinity, and probably the inquiries will be extended to some of our distant cities and towns. One special feature of these inquiries will be that they are all based upon actual observation and experiment; the microscope and test-tube throughout these investigations will be our constant companions. We shall borrow but little from the writings of others, preferring to labour and think for ourselves and to work out our own conclusions."

The wish of THE LANCET to be thorough was indicated by the stated intention of publishing the names and addresses of the parties from whom the different articles were purchased where examination had proved unsatisfactory, unless the fraudulent practices were stayed within the next three months. The name of the principal expert engaged on the inquiry was not at the time disclosed. It was Arthur Hill Hassall, but readers of THE LANCET

and many members of the public were quite able to identify the authorship, inasmuch as Hassall had published in THE LANCET interesting illustrated articles revealing the use that could be made by an expert of the microscope and disclosing also his capacity as an analytical chemist. Associated with Hassall was Henry Letheby, then lecturer on chemistry at the London Hospital, and later, when the fruits of the inquiry were seen to reflect enormous credit on its originators, some dispute arose as to the exact parts played by different persons. The Commission was devised by the Editor of THE LANCET, the plan of its working was based on previous work done by Thomas and William Henry, well-known chemists, the bulk of the microscopical examinations in the first five years, amounting to over 2000, were made by Hassall, while Letheby conducted all the important chemical analyses. The first articles of food to be made the subject of microscopical and chemical examinations were coffee, sugar, arrowroot, London water, chicory, mustard, bread, cocoa, oatmeal, tea, milk, butter, and various spices, sauces, and preserves. The investigations were thorough; they left no loophole for offenders; they allowed no possible cavil on the ground of doubtful honesty of purpose, and they were simple. All precaution was taken to avoid error, and proved effective, for it would appear that the analyses were challenged once only.

The first foodstuff dealt with was coffee, and began with the statement that coffee was largely adulterated, when the dilemma in which those who denied the proposition would be placed was indicated by figures. Official returns showed that the population of the country had increased; temperance advocates provided statistics indicating a greater use of the commodity; while the Exchequer figures proved the amount of coffee imported, as exposed by the coffee duties, to have dropped between 1849 and 1851 by £50,000. The significant fact was mentioned that during this period chicory was being cultivated in large quantities, and yet little or none of it was retailed to the public as such.

Then followed careful and illustrated descriptions of the microscopic appearances of the unroasted coffee berry, the roasted berry, and its investing membrane. These appearances were contrasted with illustrations of roasted chicory root, while the minute structures of corn-flour, potato-flour, and bean-flour and ground coffee were shown for comparison. The results of such microscopical examination of 34 different coffees of all qualities and prices justified the predictions previously made in THE LANCET; 31 coffees were adulterated, the 3 exceptions being retailed at a high price. Chicory was present in 31 instances and other flours in varying quantity in different samples. In some instances the coffee present amounted to less than one-fifth of the bulk of the samples taken, and the rather astonishing calculation was added that, using the figures of 1849 as a basis of calculation, the revenue had been defrauded during that year of no less a sum than £300,000.

The results of a second or confirmatory examination were then appended. Here 20 samples of various coffees had been purchased at the establishments of different metropolitan grocers and tea and coffee merchants, and in every single case the coffee was found to be adulterated, in 16 the tampering being of the grossest character. To defend the honest trader from his fraudulent competitors the names and addresses of the dealers from whom the pure samples had been purchased were printed in full, and the names of the adulterators were promised at a later date unless subsequent examination of their wares showed them to have profited by the warning.

At the expiration of the three months' notice, during which the names of offenders were not given, the pledge of publicity was redeemed. A long series of further analyses was published, with the full names and addresses of the vendors, the price of the coffee, the words of the advertisement claiming excellence, and the character of the adulterations. The daily press reprinted large portions of the articles, complimented THE LANCET upon its public spirit, and declared it to be the immediate duty of the legislature to adopt effective measures against such frauds.

The method employed in dealing with the analysis of coffee was followed in the analyses of other substances which appeared in the columns of THE LANCET during the next ten years; it will be sufficient to illustrate the work if no more than the bare results of the investigations are related. The second substance dealt with by the Analytical Sanitary Commission was sugar. Having described the macroscopic and microscopic appearances of sugar, both cane and grape, and detailed the foreign bodies—such as lime, lead, sawdust, starch, and acari—commonly found in impure specimens, the Commissioner gave the results of the examination of 36 brown sugars of different qualities and prices. Acari were present in 35 of the samples. Grape-sugar was detected in every sample, usually a proof of sophistication, for most of the sugars purported to be the much more powerful sweetening agent, cane-sugar. Stony particles or grit were observed in 11 samples, and woody fragments in 13. In four samples a variable quantity of flour had been introduced, evidently for the purpose of adulteration. Fifteen samples of lump sugar were then examined, and the results were found to compare very favourably with the results of the examination of moist sugar, for there were no acari, no grape-sugar, and no grit. Samples of moist sugar were then purchased in different parts of the metropolis, and every single one contained deleterious material, while two had been adulterated with flour.

The next article which fell under the Commission was arrowroot. The name "arrowroot" had been made, by dealers in the first place and in the second place by the general public, to cover almost every fecula bearing any resemblance to the true *Maranta arundinacea*, no matter how dissimilar the original plant might be. As a result there were several powdered substances in the market varying in price from a few pence to two or three shillings per pound, none of which was Maranta, but all of which had the valid claim of custom to the appella-

tion "arrowroot." The Commissioner decided to get over this confusion by stating in his analyses the name of the plant from which the arrowroot was derived, to which end he examined specimens under the following names: Maranta arrowroot; Manihot arrowroot, or tapioca; Tacca arrowroot, a pulped tuber from Otaheite; Curcuma arrowroot; Arum arrowroot, the tubers of cuckoo-pint; and British or potato arrowroot, which was, frankly, potato-meal. The adulterations to which arrowroot was found to be commonly subjected were (1) the mixing of other tubers in varying proportions with true Maranta, (2) the substitution of an inferior for a superior root, or (3) the addition to one of the genuine "arrowroots" of some fecula not generally recognised as arrowroot at all. The most common sophistication in the trade was the addition to the genuine Jamaica arrowroot or Maranta root of potato-flour or tapioca in varying proportions. A second form of adulteration was the substitution of sago or potato-meal for Maranta. A third was the addition of potato-flour to an inferior root such as tapioca. The net result of the examination of 50 samples differing in quality, price, and appearance was instructive. Of the first 17 samples, all high-priced arrowroots varying from 1*s*. 8*d*. to 3*s*. 6*d*. per pound, 10 were found to be unadulterated and seven adulterated, four to an extreme extent. Of the next 28 samples of lowly-priced arrowroots, varying from 1*s*. to 1*s*. 6*d*. per pound, 17 were found to be unadulterated and 11 adulterated, five of the latter very grossly. In one of these adulterated specimens a few grains of the genuine Maranta arrowroot were detected by the microscope, but three samples consisted of a mixture of potato-meal and sago-flour, while a fourth proved to be potato-meal only. The last five samples were articles sold in canisters which bore the dealer's warranty setting forth the very superior and unusual quality of the article and challenging observation and scrutiny. Of these one was marked "Superfine West India Arrowroot. Warranted Genuine": this was heavily charged with potato-flour. A second was "Recommended by the Faculty" as the most nourishing of all foods for children and invalids; this was entirely tapioca save a few grains of Maranta arrowroot. A third was "Warranted Free from Adulteration" and was merely potato-flour. The fourth and fifth were labelled "Arrowroot" and consisted of nothing but potato-flour.

Pepper next engaged the Commissioner's attention, with the result that he discovered that more than half the pepper purchased previously to certain convictions secured by the Excise officer was adulterated, but that subsequently to the enforcement of the law by the Excise authorities with regard to this particular condiment adulteration in an extensive form had ceased—a remarkable example of the practical effect of a little of the legislative interference which it was the chief aim of the Analytical Sanitary Commission to make general.

The next inquiry was larger in scope and of a different character. Its subject was the water-supply of London, and it was conducted in an uncompromising manner. The nature of the various impurities of water was first explained, and the action of the reservoir or cistern in favouring such impurities was discussed. A number of experiments were recorded dealing with the action of water on lead and iron, and the sources of the London water-supply at that date were investigated. The summary of the investigation ran as follows: "The waters at present in use in this metropolis are all hard, and have all the disadvantages of hard waters. They are, moreover, river waters, and for the most part contaminated to a great extent with organic matter, dead and living; add to these points their further deterioration by contact with lead cisterns and by the accumulation and growth of animal and vegetable productions which take place in these receptacles, and the case is proved against the whole of the present supplies of the metropolis." The metropolis to-day possesses an unrivalled water-supply, and the learning and activity which have brought this about have been regularly chronicled in the pages of THE LANCET from the day of the first indictment to the present era of great accomplishment.

From big to little, the next investigation concerned mustard. Here the Commissioner succeeded in demonstrating that genuine mustard, whatever the price paid, was hardly to be obtained in the year 1851. Of 42 samples submitted to examination every one was adulterated, and in every case the adulteration was the same in kind, varying only in degree, and consisted of the admixture of wheat-flour and turmeric as a colouring agent.

Bread came next, and formed the subject of a thorough investigation. The first report dealt merely with the chief constituents of bread as made from wheat, barley, oat, rye, rice, or Indian corn flour. The diseases of cereal grasses were detailed and the microscopic appearances of ergot and the different smuts, rusts, and mildews were described. Next the results of the chemical and microscopical examination of 44 samples of wheat-flour purchased from different corn-chandlers and bakers residing in the metropolis were given, to show that in no instance was there any other farina than wheat observed. This satisfactory result was attributed to the repeal of the Corn Laws, but it also pointed to the fact that the millers and corn-dealers were honest folk and that the bakers must be considered to bear the responsibility for anything other than wheat-flour found in bread. Twenty-four samples of bread having been purchased at random at the establishments of bakers in the metropolis, the result of examination was that every sample was found to be adulterated with alum.

Cocoa was analysed on precisely similar lines to those employed when dealing with coffee, and the result was that of 56 samples examined, many of which were warranted pure and possessing all sorts and kinds of charming qualities, eight only were found to be genuine. Sugar was present in 43 samples, its amount varying from 5 almost to 50 per cent., and starch was found in 46 samples, its amount varying also from 5 to 50 per cent. The starch was derived from wheat-flour, potato-flour,

sago-flour, or a mixture of these in varying proportions.

Passing over the inquiries made into the purity of opium, tobacco, and certain invalid foods as being hardly germane to the inquisition held upon foodstuffs of the people, we come to tea. Tea formed the subject of a very lengthy and exhaustive examination. The leaves of the common willow, oak, sloe, hawthorn, elder, beech, elm, and an inferior sort of camellia were depicted side by side with illustrations of the genuine leaf of the tea-plant. Thirty-five samples of black tea bought at random in London shops were then analysed. Out of this ordeal the popular beverage emerged satisfactorily by comparison with the results found in the cases of coffee, arrowroot, and cocoa. In all 35 samples no other leaves but those of genuine tea were found. Twenty-three only, however, were perfectly pure, 12 having been treated with black-lead, indigo, turmeric, and mica, these last iridescent particles being added to give a sort of glaze to the leaves. No grosser adulterations were detected, but lest these reassuring results should blind the public to the possibility of the same being practised an account was added of the trial, instigated by the Excise, of a man and his wife for the manufacture of spurious tea. In this case the inspector under the Excise Act found the prisoners on premises at Clerkenwell with an extensive furnace installed in one of the rooms. Before this was suspended an iron pan containing sloe-leaves and "spent" tea-leaves, which had been purchased from coffee-shop keepers. On searching the place an immense quantity of these spent tea-leaves and bay-leaves were found, as well as every description of ingredient likely to be employed for the purpose of illicit manufacturing of tea—such, for example, as gum, copperas, and blacklead. There was a very large quantity of spurious tea in the room which well simulated genuine tea, and in another room 100 lb. of re-dried tea-leaves, bay-leaves, and sloe-leaves were spread out to dry. The practices revealed in this case were commoner, THE LANCET Commissioner considered, than would appear probable by the results of his analyses. There was, indeed, considerable evidence that the fabrication of tea was extensively practised, spent leaves being the chief stock-in-trade, when treatment with gum and mica gave "richness and bloom" to the appearance of the mess, and sulphate of iron was added to make the decoction astringent. Chestnut-leaves and sloe- and bay-leaves were occasionally used to give bulk. In the course of this investigation, it may be added, 20 specimens of green tea were examined, when it was found that the whole of them were artificially coloured.

In 26 samples of milk, 14 were adulterated, the addition being simply water. It was not found that any more complicated form of adulteration was practised, such as the simulation of creaminess by colouring matter or the addition of thickening substances, though these manœuvres were not unknown. Isinglass and gelatin were examined, with the result that each was found to be sold to the public for the other, in spite of the fact that they possess different qualities and that as a rule isinglass is better than gelatin. Thirty-three samples of vinegar were examined and the amount of acetic acid contained in them was found only in 23 cases to reach the standard laid down by THE LANCET as necessary to constitute a good vinegar. The addition of 1 part in 1000 of sulphuric acid was permitted by law, but many of the specimens exceeded the legal limit in this direction.

Spices next engaged the attention of the Commissioner, and out of 21 samples of ground ginger 15 were found to be adulterated, the substances detected being sago-flour, potato-starch, wheat-flour, ground rice, cayenne pepper, mustard husks, turmeric, or any combination of these. In whole cinnamon, of 12 samples seven were found genuine, while the other five were examples, not of adulteration, but of calm substitution, for in each case the thing sold as cinnamon proved to be the vastly cheaper cassia. In powdered cinnamon, of 20 samples six were genuine; three consisted entirely of cassia and 10 were adulterated with baked wheat-flour, sago-flour, and arrowroot. It is significant to note from Maculloch's Commercial Dictionary that the heavy duty on cinnamon caused the consumption of cassia in the United Kingdom to rise to treble its former amount between the years 1820 and 1840. Examination of 18 samples of nutmegs, despite fables of Yankee astuteness in manufacture, showed them all to be genuine. Mace, cloves, and allspice came out of the ordeal in a similarly handsome manner. Of 21 curry powders 19 contained ground rice, flour, salt, and colouring matter—red lead, for example—in varying proportions. Thirty-four samples of bottled fruits and vegetables were all artificially coloured with copper. Of 28 samples of anchovies seven were not anchovies at all, two contained some genuine among the spurious fish, while the brine of 23 samples was charged with Armenian bole or Venetian red. Various potted meats and fish and sauces were examined, and in many of them colouring matter was found to have been introduced. Of 35 samples of preserves and jellies 33 were found to contain copper, but it was suggested that the copper saucepans in which they were prepared were responsible for this.

Many of these examinations—for example, those on such important commodities as coffee and bread—were repeated from time to time, and their results as given showed that matters greatly improved in London after the revelations of THE LANCET Commission. In 1857 the investigation was carried into certain provincial towns. Among others, Birmingham, Manchester, Liverpool, and Leeds were visited, and the results of investigations in these cities led to the conclusion that London was worse supplied with the necessities of life than the large provincial towns; but in 1858 adulteration did not exist to more than one-tenth the extent that it had done at the opening of the Commission. Despite the success of his undertaking, however, the Editor of THE LANCET declared that he had no intention of abandoning the subject until effective legislation had been secured.

He had not long to wait, and THE LANCET Commission was a prelude to all our present laws in

respect to the adulteration of food. The popular excitement created by the revelations of the Commission transcended even Wakley's enthusiastic expectations and made legislation against such abuses a matter of immediate importance. A Select Parliamentary Committee was appointed, and examined as far as possible all those likely to have any familiarity with the known adulterations, the methods necessary to detect them, their injury to public health, and their effect on the national revenue. The evidence given before this Select Committee confirmed the researches of THE LANCET Commission, not only in spirit, but in detail, and as a result the first general Adulteration Act was drafted and became law in 1860. This is known as Scholefield's Act. Its first section enacted that every person knowingly selling food or drink mixed with any ingredients injurious to health, and every person selling as pure any article of food or drink which is adulterated, should for every such offence on summary conviction pay a penalty not exceeding £5 with costs. THE LANCET was but moderately satisfied with this Act. The measure dealt with adulteration in but one of its aspects—namely, as it affected health. It did not touch upon the broader question of fraud. It was doubted if the small pecuniary penalties proposed to be inflicted by the Act would be deterrent, and it was pointed out that the appointment of analysts was left entirely optional. As the district boards and town councils empowered to make the appointments were largely composed of the very class of tradesmen who were the chief gainers from the practice of adulteration, it appeared probable the power would not be used. Future legislation, said the original Wakley, was imperative, and his words were confirmed some ten years after his death, during the whole of which time James Wakley and his brother, Thomas Henry Wakley, now proprietors of the paper, worked unceasingly to that end.

A second Act was passed in 1872. A second Select Committee sat in 1874 to inquire into the working of the two Acts, Mr. Scholefield's and that of 1872, under which many technical difficulties had arisen, and the result of this second Committee was the Sale of Food and Drugs Acts of 1875 and 1879. All this train of legislation was the direct outcome of Wakley's Analytical Sanitary Commission, and the vigorous manner in which the father's work was furthered by his sons.

THE INFLUENCES OF RAILWAY TRAVELLING.

The idea of an Analytical Sanitary Commission soon developed into a desire to inquire into all and every circumstance or position where medicine was directly interested, and henceforth, under the title of Commissions, articles were written, the result of investigations by competent persons, upon widely differing manifestations of social activity and development. The subjects of these Commissions are enumerated later (see p. 760), when many of the reports had been issued and many were to follow, but to one of these reports we will here make full reference because it illustrates well how the columns of a medical paper, running for a century, form a comment on public health in its widest aspect at different periods during that century, thus illustrating the profound modifications of judgment which ensue on experience.

The railway and THE LANCET arrived in the world practically at the same time; although history narrates earlier experiments there was in the year 1825 in the world only one railway carriage built to convey passengers. It ran on the first railway between Stockton and Darlington and bore on its panels the motto "Periculum privatum, publica utilitas," the words selected by George Stephenson as best describing the purpose to be subserved. He foresaw, in his own words, "the day when railways would come to supersede almost all other modes of conveyance in this country and railroads become the great highways for the King and all his subjects." Although the old highways remained, his vision was accurate over a hundred years; it is only to-day that there are signs that the paramount influence of the railway will be modified and that the old highways will be adapted to newer modes of travelling. But he would be a bold person who attempted to imitate Stephenson's words of prophecy and foretell the story of travelling a hundred years hence.

The first words of Stephenson's classical motto were immediately challenged, for the most alarming pictures were put forth as to the injurious influences on public health which railway travelling must produce, and awful dangers were described as impending over rash adventurers who should thus risk their safety. The immense velocity of 20 miles an hour was said to be fraught with danger to the respiration, and Dr. Dionysius Lardner, the author of "The Cabinet Encyclopædia" and "The Steam Engine," stated that the carbonic acid generated by the fuel when passing through long tunnels would inevitably produce suffocation by the destruction of the atmosphere. Sir Anthony Carlisle, surgeon and art critic, and twice President of the Royal College of Surgeons of England, had stated that tunnels would expose healthy people to colds, catarrhs, and consumptions, while boiling and maiming would be an every-day occurrence, but on the whole our pages were signally free from these melancholy prophecies. The medical profession—those at any rate who were in actual practice, and not merely praising days gone by—were unable to endorse the view that either physical ills or nervous complications followed railway travelling, and it was not till 1862 that it was considered in THE LANCET that any matters had arisen worth discussing on the subject of railway travelling in its relation to public health. But in that year the question arose in several directions. It became the opinion of medical men that the important social changes attributable to railways, while they afforded to some the means of avoiding unhealthy environments and of obtaining more time to get through their work, were not without serious drawbacks. The greater facilities for transaction of business provided by rapid communications were, it was thought, producing a corresponding change in the habits of life, for while more time was devoted to work, measures

to ensure vigorous physical health were neglected. With some 40 years of figures to rely upon, it could be shown that travel by rail was safe compared with travel by coach and carriage, but collisions directly attributed to the overworking of engine-drivers, signalmen, and guards, were always made the subject of comment in our columns when trustworthy details could be got.

In 1862, the year of the death of its founder, THE LANCET made a detailed inquiry into the influence of railway travelling on public health, and the report which was published was a very detailed review of all the circumstances. The portion of the report on the railway tracks was written by a well-known engineer, went closely into full details of the formation of the bed, the life of the rail, the weight of the carriages, and the methods taken to avoid vibration and oscillation. The different carriages of four selected lines—namely, the Great Northern, the South Eastern, the Eastern Counties, and the Great Western Railways, were described. Robert Angus Smith, the well-known chemist, pupil, and translator of Liebig, and an authority on the atmosphere of mines, dealt with their ventilation and temperature, affording, however, no solution of the dilemma that plenty of air may mean plenty of dust. C. J. Blasius Williams, one of the founders of the Brompton Hospital, and a leading authority on pulmonary disease, urged the great precautions that should be taken against chill. Forbes Benignus Winslow, the psychologist whose work led to much of our present procedure where the influence of insanity upon crime is in question, wrote at large on the cerebral effects and mental excitations of railway travelling.

A most important part of the Commission was an inquiry into the health of railway officials and elaborate comparisons were made between the English and French figures. The result of investigation among the servants of the chosen companies convinced the representatives of THE LANCET that, while to be an efficient railway servant required a sound and healthy constitution, those who best satisfied such a test were those among whom the highest rates of sickness prevailed, the suggestion being that the more mentally developed were the most subject to shocks.

All the way through the inquiry it is clear that the Commissioners were themselves imbued to some extent with the public view, even while refusing to acquiesce in it, that there was something about railway management and even about railway travelling which required self-control. We find Brown-Séquard and Russell Reynolds, leading neurologists of the day, and distinguished alike for their clinical and literary work, consider railway travelling to be especially contra-indicated "where there is a tendency to softening of the brain," while Ernest Hart narrates a case of spinal anæsthesia induced by daily travelling, and White Cooper, surgeon oculist to the Queen, states that his daily experience convinced him that injurious consequences to the eyesight have followed the introduction of railway travelling. Other medical men warned the readers of THE LANCET of the effect of railway travelling on pregnant women, on sufferers from renal or vesical affections, from hepatic disease and dyspepsia. One of the last sections of the Commission deals with the question of railway spine, concerning which at the time there were no very definite opinions. It was not, indeed, till three or four years afterwards that Erichsen wrote authoritatively on the subject of "Concussion of the Spine," and to-day we are little clearer as to what was exactly meant by the condition. The various morbid conditions, however, which followed or were stated to follow railway accidents were called "railway spine" without any particular attempt to ascertain what, if any, organic changes had taken place, what were the real manifestations of traumatic hysteria, and how to draw the line between disease and malingering.

One of the main conclusions come to is that railways, though not offering anything like the dangers to life, limb, or general health which the public seem to have believed, and which many learned persons warned them would be the case, are none the less badly adapted to the requirements of passenger traffic. All the injurious influence clearly traceable to railway travelling appeared chiefly to arise from the inefficiency of the machinery for the work which it was intended to accomplish. A large number of suggestions are put out for keeping trains at equable temperature, providing air in hot weather and shelter in cold weather. It is pointed out that there should be ready communication between passengers and the guard, by which one may gather that communication cords had then not been established. Many of the instances of discomfort or injury are due to the fact that there was no lavatory provision, and a very definite warning is given to season-ticket holders, the class known to Americans under the convenient term of "Commuters":—

> "There are only two classes of persons especially likely to be injuriously affected by moderate railway journeys, even though frequent: they are persons advanced in life and of weakened power, and those who are subject to the special diseases which have already been studied in this relation. The actual exertion, the excitement, the mental strain, the peculiar influences of the motion of a railway carriage, indicate its dangers to those first mentioned. These constitute a small minority. But there are a number of persons who, although not far advanced in age, are yet the subjects of various conditions of ill-health depending on insidious degenerative disease of the brain and heart. The season-ticket holders of the railways are in large numbers men who have passed the best years of their life in hard and exhausting employment of mind and body. They are the successful merchants, the senior partners of flourishing firms, which they have built up by a life of labour; half-retired tradesmen, half-invalid bankers, *et id genus omne*. We can now see that it is by the injuries which have resulted to these men from their constant travelling to and from town that an impression has become current as to certain mischiefs which habitual travelling inflicts. When it is stated that such a banker, who comes up 50 miles three or four times a week, has to lie down half an hour before he can sign a cheque; that such a well-known chemist has suffered from symptoms of brain excitement since he bought his new house by the sea, and travelled daily to London; or that a certain barrister has found himself obliged to pay for his journey by epileptic seizures, the alarm soon extends beyond reasonable limits. But few men can endure without suffering

to travel fifty or a hundred miles daily to their business for any length of time. The influence of the journey itself is heightened by many accessory conditions to which we have adverted, and the present construction of the rails and carriages is such as to deprive the traveller of all those mitigations by which his discomfort might be diminished and his health safeguarded."

No doubt the great improvements which soon followed, and which were acknowledged in some places to have been stimulated by our report, did remove genuine sources of physical damage to the class especially in question; but no doubt, also, some of these grim accompaniments of railway travelling, even in its more primitive form, were imaginary. Either or both these things are indicated by the fact that the second Thomas Wakley came up to his office from Brighton, returning the same day, over long periods of time, until he was well over eighty years of age. Two years after the report was published the murder of Briggs by Muller in a railway train led to a public outcry for the provision of communication cords.

THE SECOND EDITOR.

SUCH were a few salient features of THE LANCET when Thomas Wakley senior died and when his youngest son, James Wakley, became in name, what he had been for some years in fact, the editor-in-chief of the paper.

James G. Wakley was born in 1825, educated at University College School, and took the diploma of M.R.C.S. in 1849, becoming M.D. of the University of Aberdeen three years later. He never engaged in medical practice, but almost immediately became his father's editorial assistant, and was shortly entrusted with a large share of editorial responsibility. Upon his father's death he became joint proprietor of THE LANCET, with his elder brother, Thomas Henry Wakley, who was at that time practising as a consulting surgeon, but who shortly retired from practice to become manager of the paper. The chief scientific advisers of THE LANCET were at this time Brudenell Carter, Francis Edmund Anstie, Christopher Heath, Harry Leech, medical officer to the Port of London, and Tilbury Fox. Ernest Hart was sub-editor. (Fig. 27.)

James Wakley's characteristics as editor were very simple. He made no pretensions to great learning or to a deep acquaintance with science. He had an ample store of good sense, a rare insight into both professional and public opinion, promptness in making up his mind as to where the right lay, and courage in the course which was accordingly adopted. He was free from spiteful feeling, and was particularly desirous that the opinions and criticisms of the journal for which he was responsible, though often vigorously expressed, should not lead to the sort of quarrelling which had characterised so markedly the earliest issues of the paper. He had, however, an extremely warm temper, and the editorial room of THE LANCET was more than once the scene of a personal fracas, the fact that James Wakley was a notable boxer determining the issue of the conflict. Nevertheless he was a sensitive and even deeply religious man, and afterwards sincerely regretted such episodes.

The great features of the work of THE LANCET during the editorship of Dr. James Wakley, which terminated with his death in 1886, were those which might have been expected from such a man succeeding to such a heritage. He left the scientific side of medical affairs in the hands of his staff and devoted himself to extending the public functions of the paper in the widest way. Civilisation he saw teemed with questions having a medical bearing which could not be settled without the assistance of medical science, and the matters upon which he concentrated himself were especially the duties of the State to the sick poor, to those afflicted with infectious disease, and to the insane. He urged upon influential writers the necessity of exposing in his columns all conditions of employment which were attended with insanitary circumstances. He had in Hart a very able lieutenant.

Ernest Hart, then quite a young man, after a successful career at the City of London School and St. George's Hospital, showed alike his ability and wide range of thinking in his duties at THE LANCET. He was attached to the ophthalmological department at St. Mary's Hospital, but his principal work for THE LANCET was to conduct, with Anstie and Dr. Carr, of Greenwich, an inquiry into the conditions of nursing in the Poor-law infirmaries, a development of the Analytical and Sanitary Commission. Ernest Hart did brilliant work for THE LANCET, but he was an ambitious man, and he considered that his services were not properly recognised by the designation of sub-editor, and the withholding from him of public credit. The relations between him and the rest of the staff became strained, and in the middle of the work started by THE LANCET on behalf of the sick poor in metropolitan workhouses he resigned and transferred his services immediately to the *British Medical Journal*, succeeding Markham as editor in 1866. It would serve no purpose, even if the material for absolute accuracy were forthcoming, to enter into the question of this quarrel, which, however, had an influence on the pages of both journals for a good many years. James Wakley and Ernest Hart lived for a considerable period on terms of open hatred, which were not softened by Hart's description of himself as late "co-editor" of THE LANCET. There were constant rumours of libel and even threats of violence. Two camps in the medical profession were formed, and while the protagonists grew careful in their personalities, each being aware of the other's prowess, their followers fomented the ill-feeling. It cannot, however, be said that the cause of medicine suffered, as those responsible for the conduct of each paper were so alert to get ahead of each other that they were stirred to efforts which gave excellent results for their readers.

Dr. Watkin William Jones, of Streatham Common, was an indefatigable assistant editor from 1870 until 1876.

WORKHOUSE ADMINISTRATION: ANSTIE'S WORK.

The inquiry into workhouse administration was the outcome of the senior Wakley's extreme dislike to the Poor Law Amendment Act of 1834, and we must return to the views of the father as dictating those of the son.

Till 1834 the Poor Laws of England were mainly framed against vagrancy, "sturdy" mendicity, and "valiant" pauperism—practically, the laws had not been altered since Tudor days. In 1832 a Commission of Inquiry was appointed to report upon the whole subject, inasmuch as it was suggested that the pauper was considerably better off than many men in employ. Outdoor relief was found, upon examination, to be subject to all sorts of fraudulent claims, and so far popular belief was justified; indoor relief was open to the charge of bad administration. The report of the Commission showed new legislation to be urgently needed, and an Act was passed which abolished outdoor relief except as medical attendance, and established a uniform method of administration for indoor relief through the workhouses. The "unions," as the units of grouping were termed, followed and swept away old landmarks in the country. Undoubtedly the first and striking result of the new Act was to transform a large number of paupers into self-supporting labourers, and some parishes were relieved of ruinous rates. But on the other hand, the poor in many districts suffered from the working of the Act; the test of poverty was found to be too drastic, while in the workhouse, now become the only shelter for persons whose misfortunes had not been earned, as well as for the shiftless and dissolute, a routine too much resembling prison prevailed. On these grounds, widely held but only partially justified, Wakley was as vigorous an opponent of the Act as Dickens, but he was able to justify his strictures by finding that it proposed to deal unfairly with the medical profession. On ascertaining this, he could grasp no stick too heavy with which to beat it, and his desire to champion the cause of the poor was eternally kept alive by the feeling that all opposition to the Act meant assertion of the rights and status of medical men.

Wakley pointed out that there was no proper provision for the medical attendance so freely promised by the Act. The Act thus regarded seemed to be one of pure economy, designed to make the able-bodied work, to make those in full wages save against a rainy day, and to make the well-paid of a family help the ill-paid. In no case were those in good health to be assisted by the State save as a last resort. As a result the medical man became a very important factor in the working of the Act. It rested upon his decision whether an individual should be helped or should not, and the medical man was not to be paid properly. The care of the sick pauper in many places was thrown upon him in return for a pittance. As this became clear from the editorial letter-bag the indignation expressed in THE LANCET at the regulations for medical attendance spread to the whole Act, and the early denunciations of its working must be taken to represent particular resentment of the sweating of medical men as much as general sympathy with the poor and down-trodden. The paper began to concentrate upon the treatment meted out to the Poor-law medical officer, and here was close on the heels of the great reproach under which the working of the new Act lay—namely, that the provision for the sick poor was totally inadequate. These persons, whose poverty was

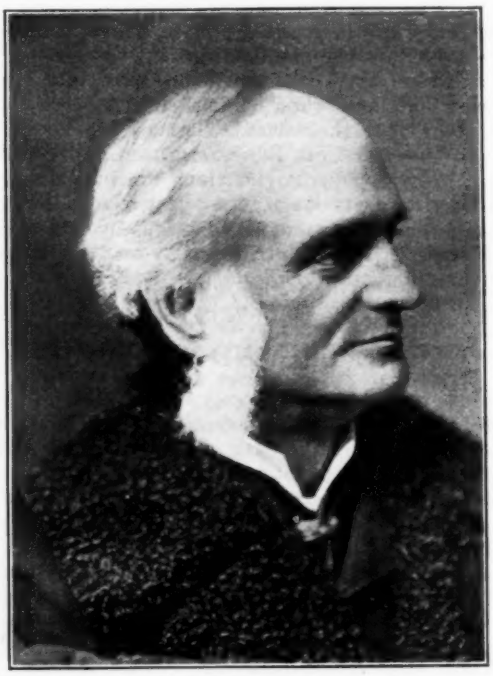


FIG. 27.—ERNEST HART.

largely undeserved, were subjected to prison treatment conceived in an ignorant and barbarous spirit, and if the ideas expressed in our columns became a little less sweeping as time went on, and the humanitarianism of the views not quite so wholesale, the existence of a real scandal in the working of the Act became none the less apparent. The main scandal was the fact that the workhouses were badly built, badly administered, death-traps to those admitted, and foci of disease to those without.

James Wakley considered it a legacy from his father to make a complete investigation into the treatment of the sick poor in workhouses. When, therefore, two tragedies in rapid succession—one occurring in December, 1864, and the other early in 1865—called the attention of the public to this very topic in an urgent and even heart-rending manner, he seized on the opportunity to institute an inquiry on the general pattern of the Analytical Sanitary Commission, appointing F. E. Anstie, William Carr, and Ernest Hart to make the investigations. Carr was a highly endowed and energetic man, and as "Carr of Blackheath" was well known far outside his circle. He was one of the most prominent supporters at its start of Epsom College.

Francis Edmond Anstie was certainly one of the most valuable advisers and auxiliaries that THE LANCET ever possessed. His first appearance in London was as an anæsthetist, but in 1859, having been admitted a Member of the Royal College of Physicians of London, he went into practice as a physician, became assistant physician to the Westminster Hospital, and joined the staff of THE LANCET, where he proved a learned and sound editorial writer on all questions of public health, as well as a pioneer along certain paths of neurology. When in 1864 the conditions, sanitary and other, of Poor-law infirmaries led to THE LANCET inquisition, Anstie took the largest part in examining the London infirmaries and wrote the exhaustive report which appeared in THE LANCET of July 1st, 1865. The report was a forcible and clear document, moderation being especially shown in the method of its presentation, for while the general character of the buildings of the 37 institutions was fairly summarised, the population served being in each case given, and while the character of the separate wards and the system of the nursing were thoroughly analysed, there were neither sweeping allotments of blame nor allegations of callousness. Regrettable facts were allowed to speak for themselves. But the fairness of the report is shown most by the fact that it closes with the expressed intention of proceeding in future inquiries to describe briefly particular institutions which "will establish the propriety of the general conclusions and recommendations." These were as follows :—

1. With regard to the building accommodation provided for the sick, the London workhouses may be arranged in three classes, as stated in the body of the report—(1) A class in which the accommodation is irremediably bad, and in which the buildings ought to be altogether abandoned. (2) A class in which, with certain alterations, the buildings might be retained for the treatment of chronic disease and infirmity. (3) A class in which the buildings are capable of being developed into really good hospitals for the treatment of all kinds of disease. In *all* the infirmaries there are great defects as to classification and separation.

2. With regard to the wards, it may be stated that their ventilation is in all cases imperfect, from a deficient allowance of cubic space per bed, and that in many cases this evil is aggravated by essential faults in the construction of the buildings. In a large number of cases their lighting is imperfect. The water-closets, bathrooms, and lavatories are in nearly all cases insufficient, in many very decidedly so. The arrangements for washing the bedridden are nearly always insufficient. The ward management is in most cases insufficient, in many grossly so, owing to the want of good supervision. The bedding and other arrangements for the comfort of patients are inadequate in all but a few instances.

3. The system of nursing is nowhere perfect, and where only few, or no, paid nurses are employed, leads to the bad ward management already noted. Very few indeed of the pauper nurses are qualified for their work.

4. With few exceptions, the quality of the provisions, wines, &c., is good. Greater provision ought to be made for *variety of cookery*, and separate infirmary kitchens should be established.

5. With regard to the diet of the able-bodied, we have at present only to note the fact that there are great differences between the nutritive value in different houses, and to recommend the enforcement of a uniform dietary. The diets of the sick and the extras allowed appear to us liberal. The infirm and chronic patients decidedly require a diet of their own, similar in character to that adopted at the Strand Union, and which they should receive without the necessity of detailed orders from the medical officer.

6. The medical officers are over-burdened with work in nearly all cases. They should be at once relieved of all expenses on the score of drugs and appliances, and of the labour of dispensing drugs. They should be placed on such a footing as to ensure the absence of all interference by the master or matron with their arrangements for the sick, be better paid, appointed for life, &c.

7. With regard to the prevention of epidemic disease, it is highly desirable that there should be wards isolated from the body of the infirmary for the reception of fevers, &c.

FIG. 27A.—FRANCIS EDMOND ANSTIE.

Anstie continued the work for three more years, and the reports will be found informing reading for a student of sociology; but in 1868 he became editor of the *Practitioner*, which had just been started in the particular interest of scientific therapeutics, and although he continued to write for THE LANCET until the day of his death, he took no more part in the editorial management. His death was a tragedy, and occurred at the age of 41 from a wound incurred at a post-mortem examination while he was investigating some obscure cases of peritonitis which had occurred in certain charity schools. He was a martyr to science, whose work had issue in constructive legislation. For his report to our columns on the state of Farnham workhouse led directly to a Government inquiry and proved the starting-point of wide and real reform. In the articles on the Farnham workhouse THE LANCET took the gloves off, holding that the report on metropolitan workhouses, published two years previously, had constituted a warning which had been entirely neglected. The Government inquiry, conducted by two Poor-law inspectors, was protracted, but when their report came it proved to be in the main a justification of Anstie's accounts and the editorial comments upon them. The Government report admitted that the majority of the things brought forward in THE LANCET required the special attention of the guardians, and immediate reforms followed.

JAMES WAKLEY'S STAFF.

It has been indicated that James Wakley was particularly dependent on his staff for the details of medical journalism, whether those were concerned with scientific work or with public affairs. Unlike his elder brother he had held no hospital appointments, and unlike his father he had made no entry whatever into public life. He was never seen at any medical or public function, and, indeed, save by a few intimates, was hardly known by sight. He depended greatly upon his friends, was naturally slow to choose them, but when chosen they were trusted entirely. It is right, therefore, to say a few words concerning three of his well-known collaborators who, as far as internal administration of the paper was concerned, were even more closely associated with us than was Anstie. They were William Tilbury Fox, the famous dermatologist, Harry Leach, the friend of the Mercantile Marine, Christopher Heath, and Robert Brudenell Carter, well known as ophthalmologist, writer, and man of affairs.

FOUR WELL-KNOWN COLLABORATORS.

William Tilbury Fox, after a brilliant career at University College, London, began life as a general practitioner in the West End. Later he travelled in the East and, having taken up the subject of skin diseases, became dermatologist to the University College Hospital, resigning a big gynæcological appointment. This was in 1866, and from that time forward until his untimely death in 1879, at the age of 43, he was a regular editorial writer on the staff, and a man to whose general opinions on professional matters great respect was paid. He was so intimately aware of the methods and ideals which characterised the paper that during an absence of James Wakley through illness he was appointed temporary editor, a post which he held for nearly a year. His training and experience had given him a wide range of exact knowledge, and he was keenly interested in all questions of medical progress and reform. But as a member of the Convocation of the University of London he showed himself an energetic opponent of the proposal to admit women to degrees, and in this direction at one time he influenced the policy of THE LANCET.

Dr. Harry Leach, like Dr. Tilbury Fox, died at the age of 43. His medical career and his association with THE LANCET were largely determined by the fact that his first professional appointment was that of resident physician to the Dreadnought Hospital for Seamen. He proceeded immediately to use the opportunity and material in a close study of scurvy and dysentery among merchant seamen, and he wrote forcible articles on these subjects, which attracted notice in high quarters. The necessity of legislation was admitted, and in the autumn of 1868 the Merchant Shipping Bill was read "to provide effectually for the inspection of antiscorbutics," in which many other measures suggested by Leach, in our columns and in lay papers, for the benefit of the Merchant Marine found expression. Leach was also the author of many of the numerous articles which appeared in THE LANCET describing the incidence of cholera in 1866, and both in practice and with his pen was a pioneer of preventive medicine. In 1870 he was appointed principal medical officer of the Greenwich Hospital, a post which he resigned three years later on his election by the Corporation of London to fill the post just created of port medical officer. Leach's work in THE LANCET was valuable, therefore, in many directions. He described at first hand methods to be taken against dangerous epidemics; he was an authority on scurvy who was undertaking investigations for the Board of Trade; he wrote a useful medical guide for ships' captains; and in his post as port medical officer he became familiar also with the problems presented by the drainage of the Thames Valley and the water-supply of the metropolis.

It will be seen that of the five chief scientific advisers with whose help James Wakley began his editorship, three—Anstie, Leach, and Fox—all died as quite young men. But Carter lived till over 90 years of age. Robert Brudenell Carter was a general practitioner who in 1854 went to serve in the Turkish Army, and from the spot contributed letters to the *Times* and to THE LANCET, summarising his Crimean experiences. He did not come to London until some 14 years later, but he remained a frequent contributor to our columns. He was not successful or happy in a provincial town, but with great resolution decided to obtain the F.R.C.S. before attempting to practise in London the specialty which attracted him. At this point let him tell his own story in a letter addressed to our columns:—

> "My life generally is calculated to encourage hopefulness under adverse circumstances. Up to the age of 40 I was a conspicuously unsuccessful general practitioner in the country. In my forty-first year I decided to burn my very small and shallow boats and to come to London. Within a year I was a leader writer for the *Times*, a constant contributor to the editorial columns of THE LANCET, and surgeon to the Royal South London Ophthalmic Hospital. Within two years I was ophthalmic surgeon to St. George's Hospital and my way was fairly clear."

Carter's life is chronicled in a book, "Doctors and Their Work," which is full of good and useful things, but which was written late in life and does not display him as the literary master that he certainly was through some 50 years of his prolonged life. Eloquent, incisive, and bitter with the pen, he could speak in public with the same command of language and high level of style. James Wakley relied on Carter almost too much, and the paper became involved in disputes upon personal matters which damaged its reputation for fairness. He left the staff of THE LANCET as the result of some violent articles which he could not justify. Those who remember Carter's work for 20 years on the General Medical Council will recall the many opportunities which his incisive and aggressive speaking gave for quarrels. In debates such things can be adjusted at once, misunderstandings cleared up, and charges rebutted, when no permanent harm follows, but in newspapers immediate reply is impossible.

Carter left the paper as a sequel to one such episode, but rejoined 25 years later, when the present editor, who had been his pupil, consulted him on certain professional positions which were being much discussed before the General Medical Council, where Carter was sitting as the representative of the Society of Apothecaries. He immediately gave all possible assistance, and from that day until the last decade of his prolonged life he wrote occasional leading articles in THE LANCET.

Christopher Heath, known to four generations of students as the author of "Minor Surgery," was a blunt forceful character. He was essentially good-hearted, but made enemies by these qualities. They were displayed in our columns on many occasions and led to awkward situations. But James Wakley recognised in him a powerful assistant, and he and Carter for some years exercised great influence over the paper.

By 1872 the staff of THE LANCET had become considerably augmented; the size of the paper had increased with the enormous development of medical knowledge, making it necessary to have different writers able to give authoritative opinions on their special subjects. In addition to the names mentioned, the staff was now notably strengthened by Robert Barnes, James Peddie Steele, and Jeffrey Marston, while Sir John Tweedy, who at the time was only just qualified, was admitted to the councils of the paper. Dr. Thomas Buzzard, whose neurological work has placed him definitely among the pioneers of modern medicine, was also a much appreciated leader-writer, for he was a practised journalist, with a learned and graceful style. Later on, at different intervals, the staff was reinforced by Sir John Williams, Vivian Poore, Henry Power, Dr. Sidney Coupland, Pearce Gould, W. S. Greenfield, and John Curnow. Sir John Tweedy joined the staff immediately upon his qualification—indeed, to be accurate, his early contributions were actually written before he had obtained any diploma—and he undertook from the first a very difficult and delicate appointment, namely, to keep the readers of THE LANCET informed upon matters connected with the Royal College of Surgeons of England, and surgical practice in the metropolitan hospitals.

CONTINUITY AND PROGRESSION.

THE scheme of work which James Wakley laid before his staff was twofold. He desired to continue and develop the undertakings of his father—an act of piety which was sometimes embarrassing; and he desired at the same time to keep his columns as open to new movements, scientific or professional, as they had been open during 40 years. This was well shown by the sequels to the Analytical Sanitary Commission, such, for example, as the inquiry into the conduct of lunatic asylums, and by the watchfulness maintained over the actions of the Royal corporations.

THE LANCET AND THE ROYAL CORPORATIONS.

In 1872 the position of THE LANCET with respect to the Royal College of Surgeons of England was not any longer one of open warfare; but the general feeling against the constitution of the College had not been abated by the institution in 1843 of the order of Fellows. In 1843 a new Charter was obtained for the College, under which there was instituted a class to be called the Fellows, from whom and by whom the Council was to be elected. The number of the Council was increased to 24, and while the existing members of the old Council were allowed to continue in office for life, provision was made that three elected members should retire annually, so that when no more life members were left it would not be possible for a member to retain his seat for a longer period than eight years without re-election. A further change was effected by this Charter, for it provided that the examiners had no longer to be selected from the Council, but any Fellow, whether on the Council or not, became eligible and for a term of not longer than four years. It will be seen that the Charter, therefore, did meet two of the main charges brought for so many years by THE LANCET against the constitution of the College. Although the Council was only enlarged from 21 to 24 persons, it was no longer self-electing, and the old rule that ten out of this small Council must constitute the Court of Examiners was abolished.

The double reason for the creation of Fellows thus became apparent: the new class was to form an electoral college for the Council and also to provide men up to date in their work to carry on the examinational duties. The first body of Fellows was chosen arbitrarily, mainly from among the Members, but within one year from the date of the Charter the Fellowship was closed except by examination, the tests being graded to provide that the Fellows should show by practical and academic acquirements that they were fit men to conduct College affairs, and particularly to examine and train their juniors. THE LANCET admitted that the new Charter stood for reforming principles, but found that it was none the less an unsatisfactory and undemocratic arrangement, in that the Council, while retaining all the power, would be recruited from a special body, in the first instance nominated by themselves, while no provision had been made for representation of the Members in general upon the governing body of their College. The higher standard of examination laid down for the Fellowship, it was allowed, provided the College immediately with a properly equipped body of examiners, and did away with the scandal caused by nonagenarians when found examining lads of the age of their grandchildren.

The College continued to come in for criticism also because of the privacy with which its business was transacted, although here the Royal College of Physicians of London was much more frequently and more logically attacked for its "*secreta collegii*." The College, as has been said, escaped the diatribes to which its sister College had to submit

in the early issues of THE LANCET, because it played so small a part in the life of the general practitioner. In Scotland especially, and to some extent in Ireland, it was more usual for the general practitioner to have obtained a medical degree, but in England a practitioner practised, as a rule, on his diploma from the College of Surgeons or his licence from the Society of Apothecaries. It was not till 1884 that an agreement was entered into by the Royal College of Physicians of London establishing a Conjoint Examination Board with the Royal College of Surgeons of England, and until

FIG. 28.—SIR GEORGE BURROWS.

that date the part played by the senior College in general practice was negligible. But officially the College of Physicians was of high importance, and its habit of keeping all its business, which was presumably discharged in the interests of the constituency and also of the public, entirely secret led to a good many caustic articles. One President, Sir George Burrows, made a definite attempt to intimidate THE LANCET, to which James Wakley replied in characteristic style. Some information had been published in THE LANCET, through a member of the staff, who wrote the article upon information from persons in authority who did not consider that the circumstances were private. The persons who gave the information on reconsideration believed that no question of privacy arose, and Sir George Burrows was told that the public apologies upon which he insisted would not be given. Succeeding Presidents were less susceptible to the dangers of publicity—indeed, from this time forward cordial relations existed between the College and the paper. (Fig. 28.)

In all the developments of medicine which have occurred during our existence it has been our aim to provide news and comment upon that news, to record all medical discoveries, to give space to the work of those who were engaged in promoting them, and to hold the balance between those who thought criticism to be criminal and those who thought that the world would be no better off for the new work. To give any summary of the forward movements which in their earlier forms originated in THE LANCET, or were noticed in it, would be in considerable measure to give a summary of the journal from its issue until to-day. Certain prominent communications which marked the early years of the paper have been singled out for notice because they became important in the years which followed, owing to developments along the indicated lines. But we have now reached the era of the greatest medical events of the nineteenth century, which have revolutionised the whole of our science—namely, the discovery of bacteria, leading to the introduction of antisepsis, while we have passed by a discovery of nearly as high a therapeutic importance—namely, the introduction of anæsthetics. The way in which these great movements were received by the paper is a running comment upon its conduct over an extended period, and at these points the summary of our work is brought down to to-day.

ANÆSTHETICS.

Most things that were new in the medical world were being sent to THE LANCET for publication at the time that the anæsthetic action of ether was revealed—especially was this the case with English or French work. The fact that something new was arriving would emerge from reports from institutions or from learned societies, when fuller information was at once solicited and obtained.

The news from Boston of W. T. G. Morton's successful administration of ether on Sept. 30th, 1846, in dental and surgical operations reached England in December of that year, when its practical importance was immediately tested and appreciated. In London, on Dec. 19th, James Robinson, in his dental consulting room, and on Dec. 21st Robert Liston, at University College Hospital, operated on patients under ether anæsthesia, and lost no time in chronicling their successes, the letter from Liston, published in THE LANCET of Jan. 2nd, 1847, having been written *on the very day* of the operation.

That issue of the paper contains some other interesting documents relating to the early surgical operations performed during insensibility; they include, through the courtesy of Dr. Frank Boott, a paper read by H. J. Bigelow before a learned society in Boston, on Nov. 9th, 1846, describing the technique and discussing its application, and also a detailed description by Boott himself of the dental operation performed on Dec. 19th in his presence by Robinson. An editorial pronouncement in the same issue of THE LANCET left no doubt of the fundamental importance of the discovery, the development in various branches of medicine and surgery of "this most valuable dis-

covery" being foretold. An attempt to patent the discovery in the name of its alleged joint inventors, C. T. Jackson, a chemist, and Morton, was denounced as preposterous, if not legally impossible, in an editorial article a fortnight later. "The thing is far too noble to be clogged with a mere commercial transaction," said THE LANCET, which had been already able to chronicle the performance of operations under ether at five London and five provincial hospitals. Illustrations of different forms of apparatus for ether administration appear in nearly every issue of THE LANCET during the early months of 1847, one of the first being that devised by Dr. John Snow, whose subsequent researches into the physiology of inhalation anæsthesia, published largely in THE LANCET, formed a valuable addition to the early literature of the subject.

It will be convenient to give dated references to the communications alluded to. Under the general heading of "Operations without Pain," a series of special reports, with full details of cases, from hospitals throughout the country began in THE LANCET of Jan. 16th, 1847, and continued for 13 successive weeks. An elaborate questionnaire was prepared and addressed in April, 1847, by Thomas H. Wakley, the eldest son of the Editor and then surgeon to the Royal Free Hospital, to the surgeons of London hospitals, on the grounds that it was "high time the profession should be put in a position of authentic information relative to the action of a remedy which has already produced such an unparalleled influence in the practice of surgery in this country." The peculiar applicability of the new discovery to general surgery was early recognised in THE LANCET, but, even in January, 1847, attempts to employ it in medical cases, such as tetanus and rabies, were deprecated on physiological grounds. Its effects on surgical shock were discussed and its use in operative midwifery prophesied. The prophecy was even then being realised, for by February, 1847, ether was already in use in obstetric operations by Prof. J. Y. Simpson in Edinburgh, by Prof. E. W. Murphy in London, and by Baron Paul Du Bois in Paris. (See THE LANCET, 1847, i., 228 and 247.)

The unsuitability of ether for cases with bronchitis was being established by our contributors (1847, i., 1210) and resuscitation by means of oxygen (ibid., 371) was being practised, while on April 17th, 1847, we were able to record examples of the practical application of anæsthetics to jurisprudence, in distinguishing real from feigned disease.

The attitude of the Editor of THE LANCET, with regard to the rival claims springing up weekly for the honour of introducing the new weapon, was an eminently sane one. In a review (1847, i., 1284) of what was apparently the first book (by J. Robinson) to be published on the subject in this country, the issue was clearly stated. "Many persons have suggested certain sniffings and breathings, and have employed them in private in a few slight cases; but these we may pass by as unworthy of notice—certainly not detracting in the least degree from the praise and honour due to the American originator, whether that originator be Dr. Morton, Dr. Jackson, or Mr. Horace Wells, the last claimant." A few weeks after this pronouncement we published documentary evidence substantiating the claim of Horace Wells for the use of nitrous oxide gas for tooth extraction prior to the work of Morton. At this time the name of Crawford Long, who apparently preceded Wells, was still unknown in this country.

Meanwhile, other gases came into use. In our foreign news columns, which incidentally gives evidence of service by well-informed correspondents in various centres of Europe, especially in Paris, we find a report (THE LANCET, 1847, i., 411) of a discussion at the Académie de Science, Paris, where Baron Flourens demonstrated that hydrochloric ether (ethyl chloride) had anæsthetic properties similar to those of ether. The next discovery recorded was a British one, and took the form of an original article published in THE LANCET of Nov. 20th, 1847, by Simpson (Fig. 29), on "A New Anæsthetic Agent More Efficient than Sulphuric Ether," followed three weeks later by details of nine obstetric operations under the said agent, known as chloroform. Prothero Smith and Murphy also recorded their experiences with chloroform in our columns in November and December, 1847.

While it was obviously much too soon to attempt to assess the relative merits or uses of the rival anæsthetics—and indeed this task has hardly yet been completed—editorial pronouncements at this period left no doubt that differences were already beginning to be recognised. In THE LANCET of Jan. 1st, 1848, Thomas H. Wakley was able to publish a record of 100 experiments on different animals performed by himself with ether and with chloroform, with the assistance of Erasmus Wilson, described as "one of the best physiologists of the day," and "that scientific and practical chemist, Mr. Bullock," in whose laboratory the drugs were manufactured. T. H. Wakley's conclusions, quoted again in an editorial comment on the first human death from chloroform, reported in our columns on Feb. 5th, 1847, was that "of the two agents in question assuredly the more dangerous of the two will be found in the vapour of chloroform."

This prophecy was indeed soon realised, and led to a reaction against the use of the newer drug in favour of ether. During the next 20 years the disadvantages of pure chloroform were made further manifest by many considered articles in THE LANCET, and in 1864 a committee of the Medico-Chirurgical Society was set up to consider the whole question from the physiological, therapeutical, and toxical standpoints. At this period we chronicled the fact that the resident anæsthetist was beginning to be an institution at the big teaching hospitals, and that "Mr. Clover's admirable apparatus," the first to register percentages of chloroform, was coming into general use, this apparatus being employed by the Medico-Chirurgical Society's committee in their investigations. The report is published substantially in THE LANCET

(1864, ii., 49 and 69) and the mixture of chloroform, alcohol, and ether (A.C.E.) recommended by the committee found favour till comparatively recent times, when the alcohol was eliminated and the C.E. mixture retained in common use. Meanwhile the use of pure ether was brought back into popularity by the introduction of Clover's inhaler. John Clover was a prolific inventor, and suggested the aspiration of the bladder after lithotrity years before Bigelow. His growing distaste for the administration of pure chloroform led him to experiment still further, and stimulated by the revival by G. Colton of the claims of nitrous oxide, he suggested in THE LANCET (1875, i., 33) the use of nitrous oxide to precede ether, and later devised an apparatus to administer successively N_2O and ether. It was this Colton to whom Horace Wells originally owed his inspiration to use nitrous oxide in 1844. Twenty years afterwards Colton re-established the gas in fashion in Paris. In 1868 we had occasion to comment on a discussion of the properties of nitrous oxide at the Medical Society of London (which met even then on Mondays) and to describe a demonstration of its administration at St. Bartholomew's Hospital and at the Dental Hospital. Our comment was that while the agent as used for the process of extracting a tooth was certainly a success, the effects did not give rise to much expectation that the gas was at all likely to replace chloroform in any but the very shortest of operations. This view, indeed, proved correct, since not until 1899, after the publication in our columns by Sir Frederic Hewitt of a preliminary report on the anæsthesia produced by the administration of mixtures of nitrous oxide and oxygen, did the method come into general use for major operations, and not until the investigation of Crile and his school in the late nineties did it become really popular.

There was now, by the last quarter of the nineteenth century, a selection of anæsthetics to choose from, and it became desirable once again to attempt to estimate the physiology of anæsthesia with special reference to the toxicity of the individual substance used. A commission with this object was established by the British Medical Association, who issued a report in 1878, and two other commissions were financed by the Nizam of Hyderabad in the early nineties. In view of the extreme complication of our modern views on the physiology of anæsthesia, it is hardly surprising that these reports gave some contradictory results and were subjected to much criticism from physiological experts. It was left to THE LANCET to revert to the clinical aspect, which had for the time being been rather lost in animal experimentation, and in the early months of 1893 we were able to publish the outcome of a special LANCET Commission appointed to investigate the subject of the administration of chloroform and other anæsthetics from the clinical standpoint.

The history of that investigation was as follows. In 1889 the Nizam of Hyderabad wrote to THE LANCET through the surgeon at the Residency, the late Colonel Edward Lawrie, I.M.S., to ask that a representative of the paper should be sent out to repeat the experiments upon the administration of chloroform which had been performed by a committee appointed by His Highness's Government. The Nizam's Government placed the choice of a scientific man to repeat the experiments, and make any others that might suggest themselves, in the hands of THE LANCET, and enclosed a fee of £1000, together with an invitation from the Government to be their guest in Hyderabad. Lauder Brunton was nominated, and he accepted the commission in the rather delicate circumstances that the work of the Hyderabad Committee had already come to certain conclusions with regard to the action of chloroform which were at variance with the views expressed by Brunton in his pharmacological writings. Brunton's contributions to THE LANCET had been for many years frequent; indeed, since he delivered the Goulstonian Lectures on "Pharmacology in Relation to Therapeutics" he had regularly assisted us. All schemes in favour of national health, of school hygiene, or of proper military training had in him a stalwart advocate. In this last connexion his familiarity with the German professional world had led him for some years to believe that war between this country and Germany was inevitable, and from a letter published in THE LANCET it came out that in days gone by Sir Douglas Haig and Brunton had discussed the circumstances of its occurrence. In the report of our Commission details of the cases were set out in tables under appropriate headings, and though the document was printed 30 years ago, the conclusions, which are set out fully below, would be substantially endorsed by expert opinion at this day. The conclusions were:—

1. That the death-rate under anæsthetics heretofore has been unduly high, and may by improved methods and greater care be lowered.

2. That ether, when properly given from an inhaler permitting graduation of the strength of the vapour, is the safest anæsthetic in temperate climates for general surgery.

3. That nitrous oxide gas should be employed for minor surgery and should replace chloroform in dental surgery.

4. That chloroform, when given by a carefully trained person, is a comparatively safe body, but is not in any case wholly devoid of risk.

5. That no age or nation is free from danger under anæsthetics.

6. That the perils of anæsthetics, however slight, demand that the undivided attention of a duly qualified and trained medical man should be given to the administration of the anæsthetic.

The work appeared in the columns of THE LANCET in 1890, being edited with extraordinary care by Dr. Dudley Buxton, and was afterwards produced in volume form. It is interesting to note that whereas the scientific aspect of the subject was altered by the discovery of the occasionally delayed effects of chloroform poisoning, to which attention was first called in THE LANCET (1894, i., 193) by Leonard Guthrie, the conclusions reached by this most exhaustive research into clinical records throughout the Empire over a long period of time by our Commission have been substantiated by subsequent experience.

Of more recent years the advances in general anæsthesia have been perhaps less striking. Early in this century W. T. McCardie revived interest in the anæsthetic properties of ethyl chloride by reporting first a few cases and then a series of over 600 under general anæsthesia induced by ethyl chloride, thus bringing to general notice in this country an anæsthetic which had hitherto been used chiefly abroad. Intratracheal ether was introduced in 1909, but did not come into general use in this country until a few years later. In a review of various methods and apparatus at the end of 1911 we quoted mainly American and foreign authorities, and were thus able to keep English workers in touch with a valuable technique.

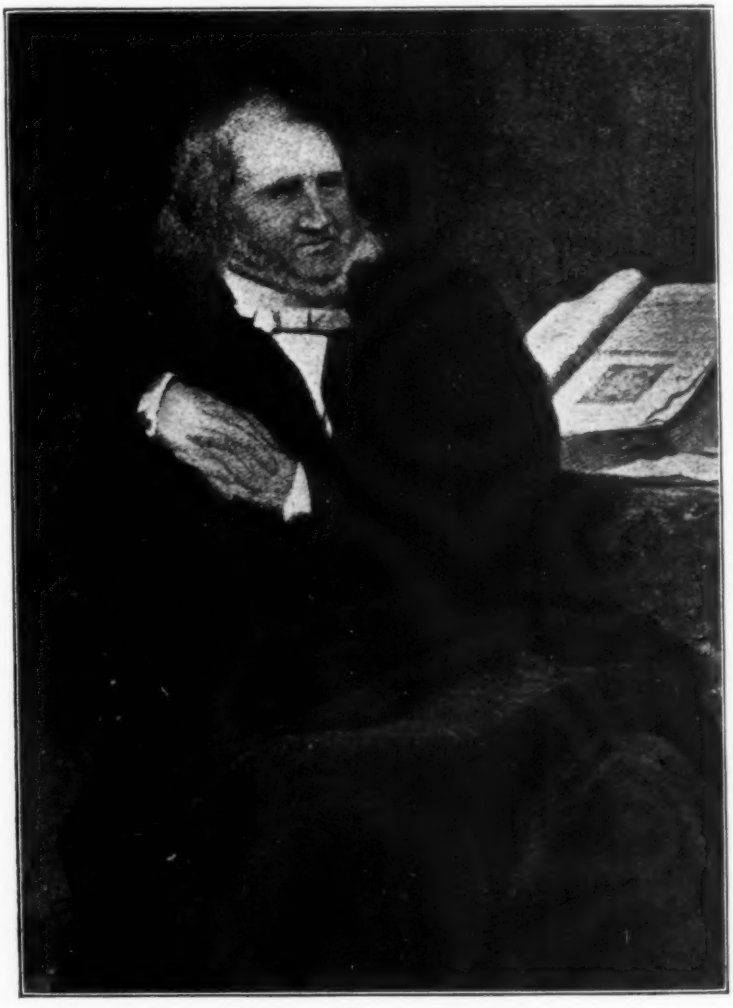


FIG. 29.—SIR JAMES Y. SIMPSON.

In Europe scopolamine-morphine anæsthesia (twilight sleep) was also beginning to find favour in certain cases; its merits in labour were extolled by C. J. Gauss of Freiburg, and were discussed in THE LANCET by Dr. G. B. Buchanan in 1906. This method of producing *general* anæsthesia by means of the hypodermic syringe has advanced in efficiency and popularity, especially for ear, nose, and throat work, but the serious development of *local* anæsthesia was dependent on the perfection of the hypodermic syringe in 1853 by Alexander Woods. Local anæsthesia by means of surface applications was much older. In June, 1848, T. Nunneley, of Leeds, published in THE LANCET the results of attempts to use ether, chloroform, and certain other volatile drugs in this way, while a week or two later Simpson records in our columns a further series of experiments on the same lines. The production of local anæsthesia by means of cold was recorded by James Arnott in THE LANCET (1847, ii., 98 and 287), using ice and salt, but this method was only capable of a wide application after the invention of the ether spray by B. W. Richardson early in 1866. This was at once recognised by THE LANCET as a device whose "application would evidently be of the most valuable and beneficent utility."

The discovery of cocaine in 1857 was the next landmark, but it was not until 1884 that Koller in Vienna used this drug in eye operations. Of this important event we received and published immediate information, and our readers were not slow to give the drug a trial. For the rest of the year (1884) our correspondence columns constantly recorded British experience of its uses, and, none too soon, of its dangers. In the last decade of the century less toxic derivatives of cocaine began to be substituted, and infiltration and spinal methods of anæsthesia were evolved. In THE LANCET (1901, i., 137) we reviewed the work of Bier, Corning, and Tuffier in spinal anæsthesia, and our foreign correspondents kept us well posted through the following years with developments in this art. The methods of Crile did not gain much attention in this country till early in 1913, when we published an elaborate article from his pen. His anoci-association theory tended somewhat to reconcile the two schools of anæsthetic practice, since he advocates spinal anæsthesia combined with inhalation of nitrous oxide. The last-named gas, combined with oxygen, proved peculiarly suitable for war surgery, and led to an extended use of this combination in civil practice. Of recent years advances in anæsthetics

have been due rather to general improvement in technique than to any startling changes in drugs or procedure. The improved status of the modern anæsthetist, who is now in an increasing number of hospitals a valued member of the honorary staff, is a corollary of the development of the specialty. It is hardly necessary to add that we have always insisted on, and are even now again urging (see THE LANCET, 1923, i., 910), the recognition of the anæsthetist as a most important member of the operating team, to whom more consideration should be given in the event of a fatality—now, happily, a rare occurrence—and more credit for his share in the common successful issue.

THE FIGHT AGAINST BACTERIA.

ANTISEPTICS.

THE LANCET was the journal selected by Joseph Lister (Fig. 30) for the first publication, in 1867, of his method of treating wounds on antiseptic principles. It is almost impossible nowadays to realise the conditions of surgical practice before these principles were established. In the graphic words of Sir Hector Cameron: "Every wound discharged pus freely and putrefactive changes occurred in the discharges of all, producing in the atmosphere of every surgical ward, no matter how well ventilated, a fœtid sickening odour, which tried the student on his first introduction to surgical work just as much as the unaccustomed sights of the operating theatre. It is hardly necessary to add that fatal wounds, diseases, and complications were never absent at any time from the hospitals of that day."

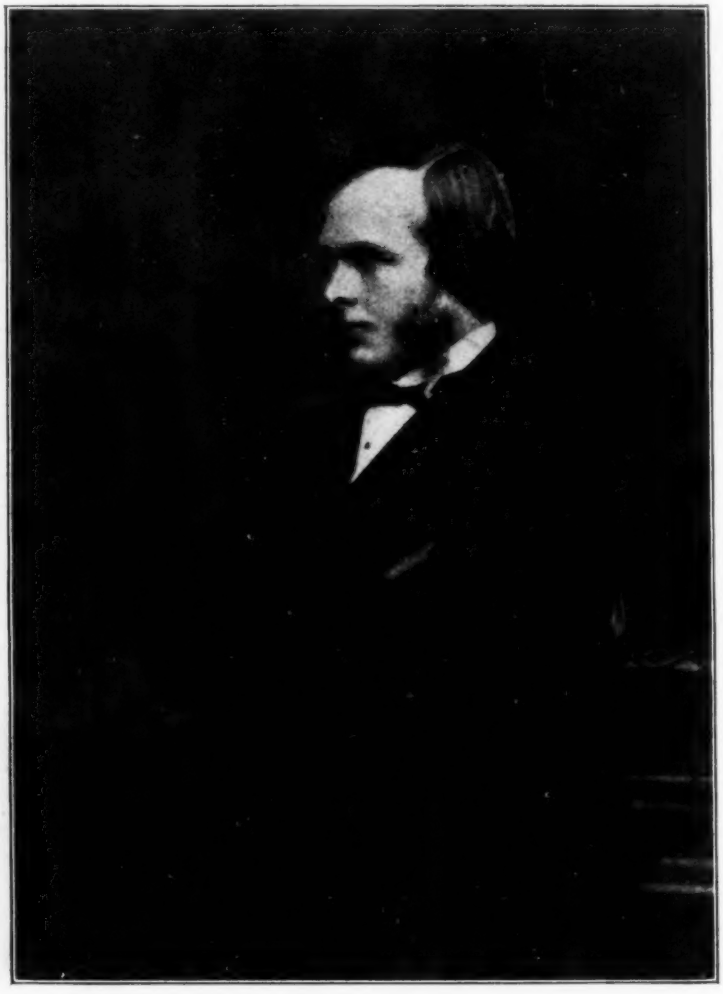


FIG. 30.—JOSEPH, LORD LISTER.

The steps of Lister's life are well known. After a distinguished career as a student at University College Hospital he qualified in 1852 and served as house surgeon to John Erichsen (Fig. 31) in London, and later to James Syme (Fig. 32) in Edinburgh. He was elected successively to the chair of Surgery at Glasgow in 1860, to the professorship of Clinical Surgery in Edinburgh on the death of Syme in 1869, and to King's College, London, in a similar capacity from 1877 to 1893, when he retired from active practice, though he lived till 1912. It was during his years at Glasgow that the terrible after-results of surgical intervention, especially that conducted in hospitals, led to various drastic suggestions. These included (1) demolition of hospitals every two or three years, and (2) the treatment of patients in a constant draught—the current assumption being that it was the hospital atmosphere which led to the onset of redness, swelling, heat, and offensive suppuration and sloughing, if not actually pyæmia, which were almost the normal sequelæ of operations.

Lister described in THE LANCET (1867, i., 326) how, pondering over "the frequency of disastrous consequences in compound fracture, contrasted with the complete immunity from danger to life or limb in simple fracture," and searching for the cause of the decomposition of living tissues exposed to the air without protection, he realised that "a flood of light has been thrown upon this most important subject by the philosophic researches of M. Pasteur, who has demonstrated by thoroughly convincing evidence that it is not to its oxygen or to any of its gaseous constituents that the air owes this property, but to minute particles suspended in it, which are the germs of various

low forms of life." Applying Pasteur's discovery to the treatment of wounds, Lister concluded with a dressing of wounds: of the principle guiding its choice he was the originator. Much more important than the previous use by Lemaire and others of this dressing was the pioneer work of I. P. Semmelweiss in 1847–49 on the ætiology and prophylaxis of puerperal fever—work which was unknown to Lister for many years after his own researches had been published, but which received generous appreciation from him when it was brought to his notice.

FIG. 31.—JOHN ERICHSEN.

What did THE LANCET make of Lister's revolutionary ideas? In our issue of August 24th, 1867, an editorial article, after setting out his principles and describing his practice, credits Lister with a "series of observations which, in point of surgical importance and fine perception of physiological processes, deserves the closest attention of all surgeons and of all physiologists," and states that if his conclusions should be confirmed by further experiment and observation "it will be difficult to over-rate the importance of what we may really call his discovery." This was high praise of such a heretical doctrine and practice, and was not popular with many highly placed surgeons. As the year 1867 progressed, the principles on which Lister worked became more and more clearly defined, and two further contributions to our columns on the Antiseptic Principle in the Practice of Surgery (1867, ii., 353) and Illustrations of the Antiseptic System of Treatment in Surgery (ibid., p. 668) contain many suggestions, founded on basic conceptions of the germ theory of disease, that might well find a place in any modern text-book. The discredit which it was attempted in certain quarters to throw on Lister's theory, when many years later he discarded after a lengthy trial the admirable logic that "it appears that all that is required is to dress the wound with some material capable of killing these septic germs, provided that any substance can be found reliable for this purpose and not too potent or caustic." He continued by describing the reasons which had induced him in 1865 to choose carbolic acid as the antiseptic to be tried, its local sedative action being one of the reasons, and gave in this and four subsequent issues of THE LANCET detailed accounts of the cases of compound fractures, abscess, &c., in which he had successfully used this method—his restraint and absence of self-advertisement in what he rightly regarded as a most important innovation being noticeable. In the last of this series he described the application of his treatment to a case of psoas abscess in a woman, aged 25, explaining that "here the essential object is to guard against the introduction of particles from without, at the same time that a free exit is afforded to the constant discharge of the contents."

FIG. 32.—JAMES SYME.

We have quoted Lister's actual words in these papers, because in later controversies on his methods the real issues on which his treatment was based—in essentials the principles guiding surgery to-day—were overshadowed, and even Lister himself appears to have lost sight of them in the heat of defence. For example, he resented hotly the suggestion by Sir J. Y. Simpson (THE LANCET, 1867, ii., 546) and others that he was not the first to use carbolic acid in the treatment of wounds. Now it did not matter if he had been anticipated in the empirical use of carbolic acid as

carbolic spray, was unfair indeed in the light of his early complete grasp of the essential facts of inflammation, as set out in the second of the papers. He says: "Admitting, then, the truth of the germ theory, and proceeding in accordance with it, we must, when dealing with any case, destroy in the first instance once for all any septic organism which may exist within the part concerned; and after this has been done our efforts must be directed to the prevention of the entrance of others into it. And provided that these indications are really fulfilled, the less the antiseptic agent comes in contact with the living tissues the better, so that unnecessary disturbance from its irritating properties may be avoided."

From the beginning Lister, bearing principles well in mind, was constantly modifying his practice. He soon found, for example, that undiluted carbolic acid in the purification of a recent wound caused superficial sloughing, and after testing and discarding an oily solution 1 in 4, found that a 5 per cent. watery solution was strong enough. In view of the antiseptic-aseptic controversy, it is interesting to observe that Lister recognised the evils of antiseptics in damaging the tissues, and in 1868 was attempting to meet them with the exclusion of germs by mechanical means, such as rubber, or at least to protect the wound by oiled silk. In the search for suitable dressings he discarded in turn putty made from carbolic oil and chalk, paraffin wax and lac plaster, all designed to hold the carbolic acid and prevent its being washed away by discharge, for those which freely absorbed discharges. The first of his absorbent dressings was carbolised gauze, and later cyanide gauze was favoured. The facts will be found in THE LANCET as they occurred.

Lister's methods did not gain ground in London with rapidity, and we allowed ourselves some editorial sarcasm at the expense of London surgeons who had no success therewith. Mr. P. R. Cresswell reported in THE LANCET of August 29th, 1868, that "the use of carbolic acid in the treatment of wounds has created quite a revolution in the surgical practice at Dowlais Iron Works," where 8500 men were employed. We commented the next week on Mr. Cresswell's excellent results, adding: "And yet Mr. Lister's treatment does not find much favour in London. Are the conditions of suppuration different here from those in Glasgow or Dowlais? or is it that the antiseptic treatment is not tried with that care without which Mr. Lister has always pointed out that it does not succeed?"

As Thomas Wakley had done in the matter of anæsthetics 20 years previously, the son now acted. James Wakley was not long satisfied with impressions, but took steps by inquiries at various London hospitals to ascertain the opinion formed by surgeons on its use. As a result of these inquiries, by Nov. 14th, 1868, he was able to record that Lister's method, "sometimes with modifications at the fancy of the surgeons, has been pretty extensively tried at the London hospitals." It does not surprise us nowadays that at St. George's Mr. Rouse "finds the proportion of one part to forty of water too strong as an application for chronic ulceration of the legs. It appears to inflame the neighbouring skin. He now orders a lotion composed of two drachms of carbolic acid to one pint of lead lotion, which he finds very useful." Surgeons at St. Bartholomew's, Guy's, Middlesex, and King's College Hospitals submitted varying reports in the concluding months of the year 1868, some enthusiastic, others damaging.

Meanwhile, suppuration being so much reduced in his hands, Lister's own attention was being turned to ligature material, for with the control of sepsis and absence of sloughing, the conception of reliable ligatures which would eventually be absorbed and organised began to intrigue him. In 1869 he published in THE LANCET a note on the Ligature of Arteries on the Antiseptic Principle, wherein he described his reasons for experimenting on these lines, the preparation of antiseptic catgut and its advantages as ligature material. We pointed out in an editorial comment (1869, i., 503) that whereas it was the custom to regard the ligature as a foreign body, more or less irritating, exciting suppuration and only fit to be roughly removed by the surgeon, "Prof. Lister's experiments lead us to think of a ligature as capable of being absorbed as dead tissues are absorbed, or encapsuled as a metal bullet might be, or incorporated with the tissue of the artery." We called attention in the same article to the discrepancy between Lister's own results and those of certain others attempting to use his methods. This was a useful comment, as it inspired Mr. E. R. Bickersteth, of Liverpool, among others, to recount in our columns his own good results, and to record the first cases in which the antiseptic catgut suture had been successfully used on the human subject for tying an artery in its continuity. (THE LANCET, 1869, i., 743, 811.) Various reports followed in which the inefficient action of catgut ligatures was mentioned. These caused much controversy. Failure was attributed by the friends of Listerism to imperfect preparation of the catgut supplied, and the reports were useful in that they stimulated Lister to study and improve methods for the sterilising and preparation of catgut.

A reformer of Lister's outstanding honesty could not fail sometimes to offend. The resentment aroused by his not altogether tactful Edinburgh lecture entitled On the Effect of the Antiseptic System of Treatment upon the Salubriety of a Surgical Hospital, which reflected rather seriously on the work of some of his former colleagues at Glasgow, was ventilated in our correspondence columns during 1870. It was impossible to doubt who had the best of the argument. On Jan. 15th, 1870, we pronounced that "Prof. Lister has done good service in publishing his experience of the antiseptic system in the Glasgow wards," and we published during that year a series of important papers illustrating his current work. In January, 1870, Lawson Tait began in our columns the first of a long series of attacks on Listerism, and we returned to the endeavour to ascertain to what extent these methods were being

"fairly and crucially tried" in London and Birmingham, the reports received being on the whole favourable.

The modifications of the antiseptic technique introduced by Lister in the early seventies were, however, to test severely the faith of those of his adherents who failed to distinguish between the principles and the current practice of his system, and, moreover, caused much discomfort to his surgical team and possibly some harm to the unconscious patient. We reported the address at the meeting of the British Medical Association in 1871, in which he first described the spray method, whereby operators worked in an atmosphere permeated with carbolic acid. For well over ten years this uncomfortable method was bravely persisted in by Lister, until, indeed, the non-pathogenicity of the bacteria in the air was definitely established. Other innovations of this period were of more permanent value, notably the rubber drainage-tube and the substitution in certain cases of carbolic acid by the milder boracic lotion. The drainage-tube adapted by Lister from that used by Chassaignac in 1859 was illustrated in THE LANCET of March 27th, 1875, and is almost exactly like the tube in use to-day. As to boracic acid, "the new antiseptic" discovered in Sweden, he found it (THE LANCET, 1875, i., 604) in the form of watery solution, "highly efficient and much less irritating than carbolic acid." Already he did not use the spray for every case. For example, he wrote on June 5th, 1875 (p. 788), "I need hardly remark that to operate under the spray when the wound communicates with a septic buccal cavity would be an absurdity. The use of carbolic lotion should also be avoided on account of the irritation which it occasions to the tissues. There is, however, no objection to having the sponges rendered pure by wringing them out in mildly acting boracic lotion."

The acceptance of Lister's doctrines abroad was much more prompt and enthusiastic than in this country. We recorded on June 19th, 1875, that his progress through the university towns of Germany has "assumed the character of a triumphal march." His cause received a setback in London through an unfortunate incident. In the early months of 1877 Lister made a speech in Edinburgh which was not intended for publication, but found its way into the lay press, containing a somewhat tactless depreciation of the methods of London schools of surgery. This gave rise to acrimonious correspondence in THE LANCET and to somewhat severe editorial rebuke. The occasion of the speech was the acknowledgement of a testimonial received from his students, on the rumour that he had been invited to leave Edinburgh for London, and should perhaps have been regarded as privileged. Lister showed no resentment at the editorial attitude, for he continued to send his papers to THE LANCET and, indeed, later in a clinical lecture published in our columns (THE LANCET, 1878, i., 5) confesses that his strictures were founded on misconception of the present methods of the London schools, and expresses his sincere regret that certain expressions used "should have seemed capable of casting the remotest possible slur on the surgeons of the Metropolis." His inaugural address to the students of King's College on the nature of fermentation offered clear experimental evidence of the groundwork on which the antiseptic theories were based. In editorial comment on the address, which is well summarised in our columns, we call attention to the skill with which Lister used diagrams and experiments to illustrate his arguments, unusual in those days, and express our conviction that the scientific world would thank him for his lecture. Later in the year he developed the subject in a "remarkably lucid and well-reasoned address" on Lactic Fermentation and its Bearing on Pathology (THE LANCET, 1877, ii., 9, 21), presented to the Pathological Society of London, where he was received with cordial welcome by a packed meeting of his scientific colleagues. Charles Murchison presided, Burdon Sanderson and Charlton Bastian were most cordial.

Nothing less than a revolution was brought about from this period onwards by the gradual spread of accounts of Lister's successful cases among London surgeons. The attitude of the rapidly diminishing opposition is well shown by an anecdote quoted by Sir Rickman Godlee in his Life of Lister. In October, 1877, Lister performed an "open operation" on a broken patella by wiring the two fragments together, then a novel procedure; and a well-known surgeon said: "When this poor fellow dies someone should proceed against that man for malpraxis."

A clinical lecture on a Case of Excision of the Knee-joint, published in THE LANCET of Jan. 5th, 1878, caused considerable sensation, and another lecture on Antiseptic Surgery, published in our issue of Dec. 20th, marked what may be termed the close of the period during which Lister's basic principles were regarded by responsible people as under any doubt. In a leading article we reviewed the situation and expressed ourselves finally convinced that "Listerism is destined to be the surgery of the future." The battle against prejudice was won. Of the publications of Lister, subsequent to this lecture and until his retirement from active practice, a good proportion were published in our columns, as may be seen in the many bibliographies of his works.

THE DISTINCTION BETWEEN PATHOGENIC AND NON-PATHOGENIC BACTERIA: ASEPSIS.

It remains only to note the alteration in technique—for it was no alteration in principle—which led first to the abandonment of the carbolic spray and later to the gradual replacement of antiseptic by aseptic surgery.

The fundamental change was brought about by the discovery that the bacteria in the air were mainly, if not entirely, non-pathogenic, and that if scrupulous cleanliness were adopted in every instrument, dressing, or finger allowed to touch the wound, incisions into tissues not already infected might be expected to heal by first intention. This ideal was developed by the aseptic

school founded by von Bergmann[1] in 1885–86, till it reached the stage well known in modern operating theatres, and there is no sign at present that in civil surgery this procedure is likely to be replaced. In war surgery, however, the antiseptic system still largely prevails. The Carrel-Dakin (THE LANCET, 1916, i., 880, and 1916, ii., 800) and the bipp method (THE LANCET, 1916, ii.) of antiseptic treatment were but extensions of the Listerian ideal, and, in fact, only one (the hypertonic saline treatment introduced by Almroth Wright, THE LANCET, 1915, i., 847) of the many methods of treating war wounds which we had occasion to describe and assess during the war was founded on physiological principles other than those elaborated by Lister. The search for Lister's ideal antiseptic which penetrates the tissues without damaging them, and yet is potent to destroy pathogenic bacteria, is not yet ended.

We have gone very fully into the story of antiseptics because some writers in summarising the magnificent work of Lister have consulted our columns partially and have come to the unjustifiable conclusion that, after having supported Lister enthusiastically at first, we later made his course difficult. It was impossible that the swings back of the pendulum, as they occurred, should not be reflected in our columns, but there was never any attack upon Lister, and many quotations from our columns, made to give colour to the mistaken view, would be found on consultation to be extracted from the reports which had to be published, if true information was to be given, and not from editorial articles.

PUBLIC AFFAIRS AND MEDICAL JOURNALISM.

A HUNDRED years of medical events cannot be told without overlapping or repetition unless regard for dates gives way to the claim for a consecutive story, when big things—such things as make epochs by their revolutionary bearing—are in question. In writing of anæsthetics and antiseptics the wish to complete a section recording the relations of THE LANCET to these big things has brought up to the days in which we live a narrative broken off under the editorship of James Wakley.

DISRESPECT FOR PERSONAGES.

There was a side to that editorship to which attention should be paid as furnishing an example of the influence of circumstances upon a journal founded to remedy the ills under which general practice lay and to raise the doctors of the people to the place which their responsibilities should give them. From the beginning this programme had been carried out with fearlessness and fierceness, with the result that much tyranny and back-sliding in high places had disappeared. It was no longer their official lapses, as presidents or professors, which offered to the leaders of medicine opportunities day by day for demanding apologies or for starting libel actions; instead, strictures were meted out to them for their behaviour in public affairs. The ethical rather than the official demeanour was made the subject of investigation, and James Wakley's aspirations for peace were thwarted by the bitter comments which appeared in his columns when social happenings brought the manners of distinguished persons under the criticism of certain of his editorial writers. It will be sufficient to give two or three examples in illustration.

Shortly after the arrival of Napoleon III. in England a consultation took place between Baron Corvisart, his medical attendant, and Sir Henry Thompson, when the condition of vesical calculus was diagnosed and the question of operative interference discussed. But the symptoms abated, and it was not until Jan. 2nd, 1873, a year and nine months later, that Sir Henry Thompson decided to operate with the general medical and surgical support of Sir William Gull and Sir James Paget. Chloroform was administered by Clover himself and lithotrity was performed. Three days later there were indications that further operation was necessary, but before this could be performed the Emperor died. The post-mortem examination revealed a condition which it was suggested in THE LANCET could have been better met by lithotomy, while excerpts were published from the back files of the *Union Médicale* showing that at least three years before the disastrous Franco-German War the Emperor's medical advisers had been perfectly aware of his ominous state. These quotations led to disrespectful comment on the wording of the post-mortem report, inasmuch as the very first sentence contained a suggestion that the conditions found at the autopsy were unsuspected, and could not have been ascertained in the course of ordinary diagnosis. Now Sir William Gull dissented from the finding of the other signatories, and his conduct in so doing was considered by THE LANCET to have been a pretence to a superior wisdom, which had only been obtained after the tragedy, and the professional attitude adopted was bluntly condemned.

Later the same physician came in for severe criticism because of certain contradictory statements which he had made in the Bravo case, the stages of which were reported in THE LANCET. That case was, and for experts in criminology remains, of extraordinary importance, and, during the whole of the protracted inquest with which the proceedings terminated, the daily journals gave prominence to the matter, and made of it a story of standing interest. A quarrel arose between Sir William Gull and Sir George Johnson with regard to the way in which Gull gave his evidence; the allegation of Johnson was that Gull, having been called into consultation because poisoning was suspected, and having been definitely told by Johnson and his colleagues why he was being consulted, suggested in his evidence that the suspicion

[1] Von Bergmann celebrated the twenty-fifth anniversary of his career as a surgeon in 1885 when he was director of the Koenigliche Chirurische Universität Klinik in Berlin. In congratulating him we noted the fact that he was engaged on a series of investigations "which are principally a continuation of Lister's inquiries into antiseptics" (THE LANCET, Dec. 5th, 1885), and in the course of the next few years were able to chronicle his invention of steam sterilisation and the world-wide spread of his doctrine and practice of asepsis.

of poisoning was due to his own sagacity. The Royal College of Physicians of London, to whom

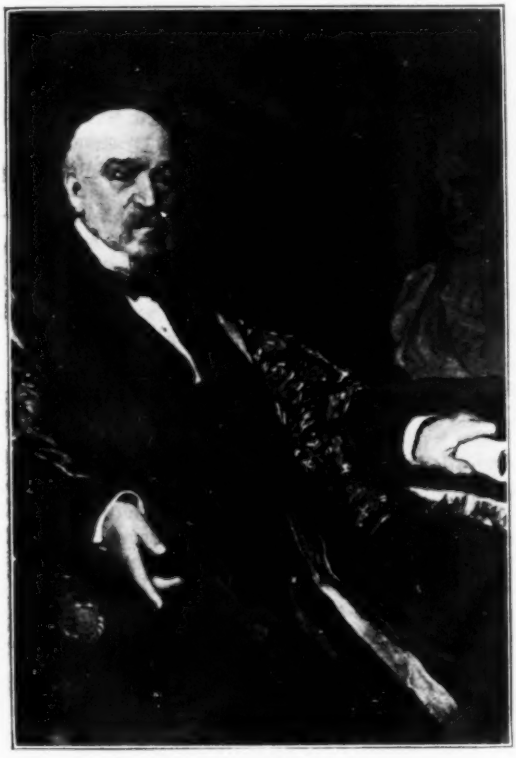


FIG. 33.—SIR WILLIAM JENNER.

the matter was referred, appears to have taken in essentials much the same view as THE LANCET, although the College opinion was expressed in more courteous terms, and the circumstances formed the text of a great deal of writing. Sir William Gull was roundly told that he ought to give an explanation, but looking at the circumstances at this distance of time we cannot see that any obligation to do so was laid upon him.

The frank way in which the professional conduct of the most successful and perhaps the leading consultant of the world was commented upon in THE LANCET was followed in dealing with the circumstances of Lord Beaconsfield's deathbed, where other eminent physicians were in attendance. It is more than probable that the unfortunate position which medical affairs assumed during the great statesman's last illness, as fully set out in THE LANCET, cost Sir Richard Quain the Presidency of the Royal College of Physicians of London. Both Sir William Jenner (Fig. 33) and Sir Richard Quain were strong candidates for the position, but Quain was generally considered to have the better chance when he decided to take a line different from that adopted by Sir William Jenner in meeting at the bedside a well-known and highly respected physician who included the tenets of homœopathy in his medical creed. Beaconsfield wished to see Sir William Jenner, who had moreover received the Queen's special command to visit him. Quain met Dr. Kidd in consultation, but Jenner declined to do so. There was nothing personal in his action—he took up the line that no grounds existed for consultation between the ordinary physician and the professor of a particularist school. At the election for the Presidency the vote of the Fellows gave Sir William Jenner twelve times the number of votes accredited to Sir Richard Quain (Fig. 34), and for some time the relations between Quain and THE LANCET were strained.

Yet one more instance may be quoted of outspoken writing which had more than a passing effect. A junior surgeon, later a member of the staff of THE LANCET, in the theatre of a London hospital performed an operation in which it was surmised by some that a vessel, not ordinarily in danger, was injured. The surmise was not verified and, most unfortunately, the patient was buried without a post-mortem examination, but one of the senior surgeons to the hospital, who appears not to have been present at the operation, denounced his colleague to the lay authorities of the hospital as incompetent, and, according to THE LANCET, the junior surgeon had received similar treatment on a previous occasion. A furious quarrel broke out, which the staff of the hospital urged should be confined to their own walls; they considered that an interchange of apologies, the senior signing "a mild expression of regret that he did not intimate to the junior his intention to libel him on the condition that the junior should express regret that anything should have seemed to call for inquiry into his surgical

FIG. 34.—SIR RICHARD QUAIN.

conduct" would meet the case. After this summary THE LANCET said that the senior man "had sinned against the very first principles of professional ethics and of ordinary morality." But, alas, the writer of the article impugning the senior's conduct was found himself to have personal reasons

for disliking him, and the attitude towards him and towards the staff of the hospital adopted by THE LANCET were so resented by other hospital staffs that, 50 years after the founding of the paper, and at least 30 years after any open quarrelling between the staffs of hospitals and THE LANCET, the paper found itself back again in much the situation in which Wakley was placed at the start of his career. Reports from the London hospitals were not sent to THE LANCET; those who were supposed to be attempting to obtain information, even of the most strictly scientific sort, for publication in THE LANCET, were warned not to do so; and some of the interesting publications which appeared in the paper had for a brief period no names attached to them. The action for libel brought against THE LANCET was settled out of court, a considerable sum of money being thus expended, while THE LANCET had to dispense with the services of its most powerful leader-writer.

THE STAUNTON CASE.

A certain number of notorious crimes are chronicled in THE LANCET with great fullness, especially where the medical evidence, as in poisoning cases, has served to determine the issue. Many of these cases have of recent years been made the subject of monographs, and to one such we may call attention because the action of the paper has been much criticised. A review of what actually did happen shows that we were on the side of justice.

In 1877 occurred the celebrated Penge atrocity, when Louis and Patrick Staunton, Elizabeth the wife of Patrick, and Alice Rhodes, Elizabeth's sister, were convicted at the Old Bailey of the murder of Harriet, the wife of Louis. They were sentenced to death by Mr. Justice Hawkins at what appears to have been the first murder trial over which he presided. The capital sentences, however, were not carried out, a result largely due to our efforts made with a remarkable consensus of opinion behind them expressed by a large body of medical men. The squalid story of the Staunton case has been admirably compiled by Mr. J. B. Atlay, in the well-known series of "Notable English Trials" and the details need not be dwelt upon; but it is worth mentioning, for those who love a sensational story, that the detection of the crime was led up to by a coincidence so remarkable that even a hardened manufacturer of detective fiction might have hesitated to introduce it into his book. Harriet Staunton, the victim, had disappeared from her family ken, when her brother-in-law entered by chance a small shop where he overheard a man, whom he did not know, asking where he ought to register a death of a lady from Cudham. Cudham was the last place from which anything had been heard of Harriet Staunton, and her brother-in-law, having his reasons, followed up the clue and communicated with the doctor. As a result an inquest was held and the arrest, trial, and conviction of the four criminals followed.

Immediately the gist of the long and detailed medical evidence became clear, it was perceived by us that a miscarriage of justice had taken place, owing to the fact that Mr. Justice Hawkins had omitted in his summing-up to give any effect to the medical testimony for the defence, though it had been presented by such unexceptionable witnesses from the clinical and pathological point of view as J. S. Bristowe and J. F. Payne. It would have been impossible to have obtained medical witnesses whose qualities more absolutely demanded that their words should be treated with respect, for they were learned, exact, and experienced men; a verdict obtained in flat contradiction to their views was almost certain to be one contrary to justice. The point at issue was whether Harriet Staunton had been starved to death or had died of tuberculosis. The proof of criminal neglect of the unfortunate woman was overwhelming, but the judge left the case to the jury as "murder by starvation," while the fundamental proposition—namely, that the deceased had died of starvation—was not only unproved, but was entirely unsupported by the medical evidence. Even the inferences drawn by the medical witnesses for the prosecution were admittedly not warranted by the post-mortem appearances as described by themselves, and THE LANCET took up the ground that it must be impossible to prove murder by starvation without first showing that death had occurred from starvation, and the attempt to affirm that proposition had failed. We considered the issue raised so serious that we asked the medical profession to mark its sense of the emergency by a combined expression of opinion, while making it clear that our view of the situation which we wanted them to endorse, was not suggested by sympathy with the prisoners or a low estimate of their crime. We desired in the interests of justice to place on record a strong belief that the indications offered by a dead body, imperfectly examined, had been misinterpreted, an inference being drawn which the facts did not warrant, but which, on the contrary, they controverted. We invited medical signatures of endorsement. In the same issue of THE LANCET we published a statement by Prof. W. S. Greenfield on the medical evidence of the Staunton case. Greenfield, a member of the staff, was at the time lecturer on pathology to St. Thomas's Hospital, but had already shown the qualities of observation and research, both there and at the Brown Institute, which later gained him so eminent a position in Edinburgh. His submission that starvation alone could not have caused the death of Harriet Staunton was convincing. Some 700 physicians and surgeons, headed by Sir William Jenner, signed a memorial for a reprieve, when Alice Rhodes received a free pardon, and the three Stauntons were sentenced to penal servitude for life.

Bristowe, whose evidence was brushed aside by the judge, was the author of the "Theory and Practice of Medicine," as popular a manual in medicine as Erichsen's book was in surgery. He was one of the best clinical teachers whom the London schools have ever known, and a frequent contributor to THE LANCET. His closest connexion with us, however, was in the early days of his career, when he was in charge of sanitary investigations for the Public Health Department of the Privy

Council before the absorption of that department in the Local Government Board. In 1863 he reported, with Timothy Holmes, on the sanitary condition of the English hospitals. The reports themselves are buried in blue books, but some of their valuable lessons will be found in a statement in our columns from Holmes, and both he and Bristowe for many years kept us thoroughly well informed on institutional matters. In fact, their experiences supplied much of the information which brought home to the second Thomas Wakley the needs of the metropolitan hospitals and stimulated him to his actions in behalf of the Metropolitan Hospital Sunday Fund, now to be described.

We come to a pleasant side of James Wakley's reign when we turn to his constructive policy in the matter of hospital finance, his generosity to Epsom College, and his crusade against impurity in food and drugs. In the last instance what he did was a sequel to work begun in his father's time, and in all three directions he left behind him definite tasks for his successors.

METROPOLITAN HOSPITAL SUNDAY FUND.

The origin of the Metropolitan Hospital Sunday Fund has been the subject of considerable controversy, though of a more friendly nature than usually attends differences of opinion upon questions of priority. In a sense James Wakley was the originator of the Fund which was to furnish a pattern upon which later the splendid organisation of the Prince of Wales's Hospital Fund for London arose. And it is significant that the latter foundation has in no way interfered with the utility of the older movement, with its power of doing good or with the influence of its special appeal.

Before there was any Hospital Sunday Fund in the metropolis a plan for benefiting hospitals in the identical way had undoubtedly been started in Birmingham. Mr. T. B. Wright, editor and proprietor of the *Midland Counties Herald*, broached the subject to Canon J. C. Miller, a well-known Birmingham clergyman, who later became rector of Greenwich. Mr. Wright's suggestion was that the collections taken at every place of worship in Birmingham on a certain Sunday should be devoted to the needs of the medical charities of the city. In 1869 James Wakley determined to undertake the task of making such a method of alms-giving national, and in the year 1872 he succeeded in arousing sufficient interest in the metropolis to launch his scheme successfully The movement did not spread from London in accordance with the design, though local efforts were noted for a time, especially in the north of England. But from the beginning large subscriptions were received from the provinces to the Metropolitan Fund in recognition of the facts that the hospitals of the metropolis received within their walls patients from all over the Kingdom and that the medical staffs attached to those institutions did work which was in no way confined to the capital.

The part played by Henry Burdett was recognised to the full by James Wakley, as it was Burdett to whom he went when he decided to establish a Metropolitan Fund. When the credit of the establishment of the Fund became a subject of controversy, an historical sketch of the movement, together with the articles which appeared in THE LANCET in its support during the years 1869–72, was written by Burdett and published as a pamphlet. From that pamphlet the following passages may be quoted as both describing the origin of the movement and settling all controversy. Sir Henry Burdett wrote :—

> It was Mr. Wright, the editor and proprietor of the *Midland Counties Herald*, who aroused the late Canon Miller and the people of Birmingham to the fact that collections made simultaneously in all places of worship throughout that town each year in support of hospitals would produce a sum so large as to be remarkable, and results so beneficial to the whole community as to be calculated to ensure for ever to the originators of such a movement the gratitude of many people. Similarly to Dr. James Wakley, the Editor of THE LANCET, chiefly belongs the honour of transplanting the Hospital Sunday movement from Birmingham to Manchester, Liverpool, Dublin, Carlisle, Chester, Birkenhead and many other towns. In the year 1869, when Dr. James Wakley determined to devote himself to the congenial task of making the Hospital Sunday movement national and, if possible, universal by causing it to become popular through the length and breadth of the land, Hospital Sunday was an institution practically confined to Birmingham, where it had been in successful working for ten years.

James Wakley commenced by appealing to the Church itself suggesting that the archbishops and bishops should take counsel together upon this matter and use their utmost endeavours in their several dioceses to establish a Hospital Sunday as one of the permanent institutions of the Kingdom. He asserted that if the Church of England would take the lead, it would be followed with alacrity by the Dissenting community, who are always ready to prove by their action that upon the common ground of Christian charity they are willing to meet their brethren of the Establishment in friendly and emulous coöperation. The moral effect of a nation unifying for public recognition of the claims which the sickness and suffering of those who are not able to pay for medical treatment and care would have upon those whose means are sufficient for their own and others needs would, James Wakley asserted, be huge. The practical result would be that in enabling medical charities to maintain and extend the sphere of their operation by the additional support they would derive from the Hospital Sunday collections, numbers of persons would be prevented from becoming permanently chargeable upon the poor-rates, and thus the tide of advancing pauperism would have at least one of its sources dried up.

> "Dr. Wakley," says Burdett, "found the task he had set himself to perform no easy one; that the very people whom he wished to benefit were largely apathetic and slow to adopt his views; and although several of the large provincial towns gradually followed the example set by Birmingham, it was not until after three years' advocacy and a special appeal to Sir Sydney Waterlow on his assuming the office of Lord Mayor in 1872 that any practical impression was made upon the metropolitan hospital authorities or the inhabitants of London. As was remarked in THE LANCET at the time, if these gentlemen were

blind to the advantages which a Metropolitan Hospital Sunday Fund offered, or were too apathetic to take any measures for securing them, it was not reasonable to suppose that anybody else would put the bread into their mouths."

Wakley combated the many objections urged against the new project, and the first meeting of supporters was held in THE LANCET offices, with Canon Miller in the chair. On Nov. 30th, 1872, Wakley stated that Sir Sydney Waterlow, the then Lord Mayor, was entirely in favour of a Metropolitan Hospital Sunday Fund and had promised to give it his warmest support. On the same day he reprinted a series of articles which had appeared in THE LANCET from 1869 to 1872 in support of the Hospital Sunday movement, which were written by Burdett and Brudenell Carter. The circulation of this pamphlet, followed by the meetings of a representative committee which was specially formed, resulted in a conference of gentlemen, including clergymen of the Church of England, the Archbishop of Westminster, and the Roman Catholic clergy, Dissenting ministers of almost every denomination, members of the Jewish persuasion, the Archimandrite of the Greek Church in London, together with many laymen of all churches at the Mansion House on Jan. 16th, 1873, under the presidency of the Lord Mayor (Sir Sydney Waterlow) for the purpose of forwarding the movement for establishing a Hospital Sunday over the whole metropolis similar to that which had been adopted in Birmingham, Manchester, Liverpool, and other large towns.

From this meeting onwards Sir Sydney Waterlow took charge of the Metropolitan Hospital Sunday Fund, of which he became the active spirit. It is clear, then, that divided honour is due to T. S. Wright, Canon Miller, Sir Sydney Waterlow, and James Wakley as the founders of the Metropolitan Hospital Sunday Fund in Birmingham and London respectively. Wright and James Wakley, by the weight of their influence and official positions, turned the scheme into fact, and James Wakley gave to the Fund £1000 on two separate occasions, while he also left the same sum to the charity in his will.

The following is Mr. Brudenell Carter's story of the actual foundation of the Fund :—

"When I joined THE LANCET staff in 1868," he says, "Dr. James Wakley was editor and he was very anxious to obtain the establishment of Hospital Sunday. He caused several articles to be written on the subject by myself and others, and finally asked me whether I could not do something with the *Times*. I went to Delane on the subject and he said that he was not prepared to commit the *Times* to the proposal, although he thought well of it, but that he would publish every extract from THE LANCET with regard to it that was sent to him. We took full advantage of this, and THE LANCET almost weekly had a paragraph on the subject, all of them appearing also in the *Times*. About the same time I discussed the question with the Duke of Westminster who was treasurer of St. George's and often there, and also with the Bishop of London, Dr. Jackson, whom I had known before his elevation to the Bench. Both were at first opposed to it, the Duke thinking that the annual collection would withdraw subscriptions, the Bishop that different religious bodies would never be got to combine. In due time all difficulties were overcome and a great meeting was held at the Mansion House for the establishment of the Fund. I went in before the chair was taken, while people were still standing about, and caught the Duke's eye, who beckoned to me. I went up to him and he pointed to the Bishop, who stood near him, and said, 'Here Carter, come and sit between two converts.' I was on the first council of the Fund."

Mr. Brudenell Carter's letter, written 50 years after the event, was a purely personal account of his own share in the movement, and this it will be remembered was very large, for he was one of the principal authors of the numerous articles which appeared in THE LANCET advocating the scheme, while he also, from his position as medical adviser to the *Times*, kept the columns of that paper open with steady persistency to the advocacy of the Fund.

The omission of Burdett's name was unfair, and was due to a belated recollection of the strained situation which arose between James Wakley and Burdett when Wakley refused to publish in THE LANCET a weekly supplement dealing with hospital and institutional matters, to be edited solely by Burdett. Wakley did not consider it possible then to delegate his editorial authority, and Burdett thought that it was designed to use him for the aggrandisement of THE LANCET. The result of their difference was the founding of the *Hospital*, which Carter resented, as he had advocated the hospital supplement in THE LANCET.

The first collection was made on June 15th, 1873, when there were 1072 contributing congregations, and the total receipts in London amounted to £27,000. The totals increased with almost steady persistence till 1895, when they reached £60,361, the contributing congregations numbering 1807. In the next three years there was a fall in the total, but after that it steadily mounted again, till in 1922, the last year for which the figures are available, the total stood at £100,889 with 2162 congregational contributors.

EPSOM COLLEGE.

Epsom College was founded by Dr. John Propert, and the movement received from the beginning the warmest support of James Wakley. John Propert's object in founding the school was to assist medical men by educating their sons well and economically. He strove to obtain support to constitute a Foundation of 50 boys, the foundationers to be the children of medical men where circumstances had prevented the children from enjoying the usual opportunities of the sons of professional men. The terms of the Foundation almost implied that the father should be either dead or incapacitated from medical practice. Queen Victoria granted her patronage to the College at the very outset, so that the Medical Foundation was assisted from the beginning by the appellation "Royal." The subscriptions came in fairly promptly, and within two years of the initiation of the movement a part of the institution was declared open, but considerable as the sum at the disposal of the governing body soon became, it was far from adequate to meet the intended expenses, and the columns of THE LANCET contained time after time pleas to medical men to add their names to the list of subscribers, some of them written by William Carr

and others by Glover. Carr collected over £2000 from old University College men. The proprietors of THE LANCET acted up to their words and sent £1000, and from that day forwards the interests of the College have always been forwarded by the paper. In particular were all developments tending to make of Epsom College a great and general public school fostered and approved, it being seen that the children of one class going to a purely class school would themselves lose half the benefit of English public school education. Further, and taking the development of Eton and Winchester in proof, it was certain that where the best facilities are provided in behalf of a Foundation parents whose children cannot enjoy the pecuniary advantages of the Foundation will send them with great readiness to share in the educational opportunities. It is well known now that Epsom College, though its initial reason was its Royal Medical Foundation, ranks on general grounds with the large public schools of England.

THE MEDICAL ACT OF 1886.

In 1886, the year of James Wakley's death, the Medical Act of that year (49, 50 Vict. Cap. 48) was passed to amend the Medical Act of 1858. During the 28 years under which medical registration and education had been carried on and medical discipline organised under this Act, some weak spots had revealed themselves in its working, while the development of the medical profession had been such that situations had arisen which had not been contemplated by the original reformers. Throughout the whole period we find THE LANCET putting forward arguments which had been employed when the first medical reform measure became law, and to a certain extent the amending Act was in consonance with the views expressed. The state of the medical curriculum had become inchoate from the fact that, leaving the universities apart, the several corporations were able, each without reference to the other, to grant a complete qualification to practise without having held an adequate examination in the three principal departments of medicine—namely, medicine, surgery, and midwifery. The perfunctory nature of the examination, now in one subject and now in another, was constantly referred to in THE LANCET, with the implication that under the original scheme, put out by THE LANCET, such troubles would not have occurred. When the Medical Bill of 1886 became law it had a mixed reception. The way in which revealed defaults were to be met did not seem to many of the more advanced thinkers to be satisfactory, while certain aspirations towards the institution of a universal diploma were brought definitely to an end. The new legislation provided that admission to registration should follow a qualifying examination in medicine, surgery, and midwifery, to be provided (1) in any university where the necessary educational facilities were forthcoming; (2) by a combination of a university with a medical corporation so as to provide these facilities; or (3) by any combination of two or more corporations in the same part of the United Kingdom who by agreeing to hold a joint examination would cover the whole curriculum. Thus were produced the conjoint boards under which the most valuable part of the education of the country is now carried on, and by so doing it simplified and codified the previous system of medical education, and suppressed a great deal of isolated and inadequate examination.

The main fault found with the Act was that the number of examinations and of separate examining bodies still remained far too great, and to THE LANCET it was a disappointment that a well-organised movement for the institution of a one-portal system, which started in 1869, had made no converts in the legislature. The advantages of such a reform were pertinaciously pointed out by the paper. Certain corporations were able to give to their diplomats a complete and legal right to practise medicine in its three branches of medicine, surgery, and midwifery without there being any guarantee that the students were adequately examined in all three subjects. From this fact arose the feeling that a surgical corporation would be well advised to coöperate for examination purposes with a medical corporation and make thus a joint board whose tests should be fully inclusive of the three main headings of medical education. Having got thus far in a scheme of amendment it was logical to include in the movement the universities, and thereby prevent any down-grade competition between the various examining bodies. In this way the idea of one examination board for England, or of three examination boards, one for each division of the United Kingdom, arose, and having arisen took such a powerful hold on the reason of the leaders of medical education that in the late "seventies" a one-portal system as nearly as possible was established. By 1875 one corporation after another and one licensing body after another had approved of a one-portal system and had expressed their desire to coöperate and establish a common examination board. But one by one they raised later some objection to the conjunction, or found at the eleventh hour that by the provisions of their charters they were unable to enter into the combination which they desired. Yet these recurrent impediments were got over, and eventually all legal obstacles were removed. It seemed to everyone that the chief difficulties to a speedy coöperation of the various bodies had disappeared, and that nothing remained, except the settlement of preliminary details, to oppose the formal combination in England of the Royal College of Physicians of London, the Royal College of Surgeons of England, the Society of Apothecaries of London, and such universities as at that time were represented upon the General Medical Council; and this expression of opinion was published in THE LANCET, where every phase of the movement was carefully followed, and where also the temptation to prophesy was fortunately resisted. The Scotch and Irish bodies were not so ready as the English bodies, but the probability is that if the English bodies had been able to come to a working agreement for the establishment of a one-portal scheme for England they would have been followed in the sister divisions of the country. But at the last moment the plans of amalgamation came to nought. One

body, and one body only, unexpectedly stood out upon one point, and one point only, and before this dissenting body could be brought again into line the unity of opinion had ceased to exist.

To those who had had the idea of a one-portal system at heart the Act of 1886 was a disappointment, but to-day we can see reasons for other feelings. Undoubtedly the establishment of a one-portal system would have been a great stride towards the erection of a State medical service, and against that THE LANCET was and is firmly opposed.

THE LANCET IN THE 'EIGHTIES.

CLINICAL WORK.

THE output of every paper, which has a reason for its existence and would try to justify it, will be divided roughly into work recorded and work done; and the confining of this *apologia* largely to the latter category is not due to egoism but to necessity. No reasonable summary can be made of the work recorded in our columns, as done by those who have had the conduct and progress of medicine in their hands for a century. It would be useless to detail the important scientific communications which we have published throughout such a period, and even to make any wide selection from them on the score of their permanent value would be impossible over the whole range of medicine. In the chronicle of the earlier years something of the sort has been attempted, for in those days clinical medicine was far simpler, more traditional and empirical, and infinitely less divided and subdivided into special ranges of energy. We have, therefore, recalled as a matter of historical interest the names and writings of those fathers of medicine who published in THE LANCET, almost from its appearance, what proved to be the foundation of later and more systematised knowledge. We have also tried to show briefly how from the middle of last century until to-day our pages have reflected medical accomplishment and medical opinion, as the first was acquired and as the second was established, by telling in some detail how we dealt with two grand factors in medical science, the use of anæsthetics, and the discovery of antisepsis and asepsis.

The rise in the standard of medical education, following the provision of opportunities for students, led to the developments in medical science for which the latter half of the nineteenth century has earned perpetual fame. These in their turn reacted on the course of training, in case of both teacher and taught, causing the range of discovery and invention to extend indefinitely. We have endeavoured to keep pace.

James Wakley died in 1886, and during his tenure of the editorial chair the whole of medicine, as we understand it to-day, came into being. His contributors told of the rise of physiology and its gradual influence on pathology, of the beginnings of biochemistry, and of the influence of Darwin's work on medical aims. They wrote of a surgical technique and pathology, slowly or rapidly being revolutionised; they recorded fundamental advances in neurology, electrology, and obstetrics, and the discovery of the bacilli of tubercle, cholera, and tetanus, and the presence of the hæmatozoon in the blood of malarious subjects. In the year following James Wakley's death came the discovery of the bacillus of Malta fever, and then in rapid sequence we have the arrival of inoculation for rabies, the antitoxin treatment of diphtheria, and the discovery of the bacillus of plague.

The most marked feature in the clinical side of THE LANCET at the latter end of the nineteenth century is the amount of space devoted to the growing science of tropical medicine. In every volume, and often in many consecutive issues, the stories of plague, malaria, sleeping sickness, yellow fever, and kala-azar are related. We were not always the first to announce the discoveries, though that has been our privilege, and full reports of proceedings at international congresses kept us, as well as our readers, true to the bearings. We were certainly advised from the conservative point of view in connexion with malaria, as apparently the fact that the rôle of the mosquito had been definitely ascertained was not acknowledged as telling the whole story until 1900, but in the matter of sleeping sickness, cholera, and kala-azar communications and reports were well up to date and the conclusions quickly arrived at. On the discovery of the Rontgen rays the immediate developments in diagnosis and treatment which would follow thereon were foretold. It may not have been a very remarkable prophesy, but from the purely journalistic point of view it has been interesting to find that the first pathological radiograms to be published were in our pages.

In 1903 came the demonstration that sleeping sickness is transmitted by the tsetse-fly, and two years later the parasite of syphilis was discovered, leading up to the rational treatment of that human scourge.

In returning here to the story of ourselves, enough has been said to show that at James Wakley's death the scientific and clinical departments of the paper were congested with the mass of work, developing in all directions, of which a weekly review had to be made.

THE CO-EDITORSHIP.

The embarrassment in telling a consecutive story has again become apparent. In the description of the scientific discoveries of the 'eighties a jump ahead has been made of the domestic chronicle to which we now return.

The situation which arose at the death of the Founder of THE LANCET was more or less repeated upon the death in 1886 of his successor and youngest son, for just as James Wakley had assisted his father for some three or four years before taking up the editorship, so Thomas Henry Wakley, the Founder's eldest son, and Thomas Wakley, junior, the Founder's grandson, had been engaged in the editorial duties before the chair was vacant. So that on the death of James Wakley there stepped into his place as joint editors his elder brother, who had been, as

manager of THE LANCET, associated with all the business side of the journal for 20 years, and his nephew Thomas Wakley, jun., who had learned the editorial routine from his uncle, and from the very competent staff which James Wakley had got around him. The majority of these continued their coöperation, and there was no break whatever in the policy of the paper or in the manner in which that policy was carried out. The most marked feature of the period was the steady increase in the size of the paper, indicating the directions in which evolution had taken place in the practical side of journalism—medical as well as lay. Speaking generally, for the first 30 years of the life of THE LANCET it was difficult to obtain medical information because publicity in its columns was resented and feared by a great many institutions and individuals, and this feeling was reflected in the reluctance of some authors to communicate their work to the paper. During this period, therefore, all the information in THE LANCET had to be worked for, and the fact that most of the important proceedings at institutions and societies were reported, and most of the scientific communications which really made medical history were published, form a proof of great determination. During the next 30 or 40 years the position gradually, and at last rapidly, altered. The violence and extravagance of the early days were seen to have been honest if sometimes extremely disagreeable methods for securing reforms, and as the evils complained of were proved to exist the remedies suggested were more or less adopted, and in proportion as they materialised the abuses disappeared. As hospital organisation improved and as efficiency was made the one great test for admission to the staffs, the necessity, as the first writers in THE LANCET conceived it, of abusing the medical charities faded away. When the system of education improved and the reforming Acts of Parliament got on to the Statute book the patent reasons for violent criticisms of the Corporations disappeared also, but it must be admitted that while systems and institutions were treated with the increased respect which they deserved individuals were still freely handled. Sufficient examples of these have been given, and it is well to record here the somewhat surprising fact that the furious quarrels to which allusion has been made left behind them no abiding rancour.

THOMAS HENRY WAKLEY.

Thomas Henry Wakley, who succeeded to the editorial chair, was even more retiring from professional and social life than his brother James; the two brothers, indeed, showed great similarity of personal characteristics and temperament, although their preliminary educations differed widely. And the life work of each, as far as it was connected with THE LANCET, was very similar, the parallel having originated in the fact that each regarded his position as an heritage from the father, who founded the paper, and considered the first programme to be a constitution which could not be departed from without grave reason.

Thomas Henry Wakley was born almost contemporaneously with the paper, and during his boyhood the sensational proceedings of THE LANCET were attracting the notice of the legal and medical professions. He was sent up to Wadham, but while still an undergraduate University College, London, was founded with a famous medical faculty in attachment, and as he intended to practise medicine he transferred himself to London without taking his degree at Oxford. In those days the medical teachers, or professors, at University College were an extremely distinguished band, numbering among them Samuel Cooper of the Surgical Dictionary;

FIG. 35.—SIR ERASMUS WILSON.

Liston, reputed the finest operator in London; Richard Quain, the author of "The Anatomy of the Arteries"; Anthony Todd Thompson, author of "The Dispensary"; Robert Carswell, the famous pathologist; Robert Grant, the comparative anatomist; and Sharpey, the leading physiologist of the day. It will be remembered that the lectures of many of these savants formed the conspicuous characteristics of the early numbers of the Journal. An industrious student, therefore, had extraordinary opportunities at such a school, and young Wakley became known to more than one of his teachers as a promising pupil. He was also admirably coached, for his father secured Erasmus Wilson, at that time lecturer on anatomy at the Middlesex Hospital, to read with his son. Wilson and his pupil got on well together, and Wakley acted as demonstrator at his coach's private classes with great benefit to himself.

(William James) Erasmus Wilson (Fig. 35) was the pupil of Abernethy and of Lawrence, and after demonstrating in anatomy under Jones Quain and Richard Quain, started a private school of anatomy,

at which time he became T. H. Wakley's tutor. The scholastic venture was not successful, and he applied to the Middlesex School for employment, and at the same time was appointed assistant editor of THE LANCET. He himself attributed his determination to become a dermatologist to the senior Wakley's advice, and it is an often told story that Wakley bade him link his name so closely with skins that when he entered a room the company would scratch themselves. (The story is told of other dermatologists possibly with equal correctness.) His enormous success need not be dwelt upon; his benefactions to the Royal College of Surgeons of England, over which he presided in 1881, amounted to over £200,000, in addition to which he gave large sums of money to Epsom College and the Sea-Bathing Infirmary at Margate, and defrayed the expense of deporting Cleopatra s Needle to the Thames Embankment. He was an assiduous and scientific worker, who owed his great pecuniary reward to these qualities, and also to a remarkable use of opportunity. His field of medicine was unexplored, so that when he broke ground he enjoyed almost a monopoly, while he made large investments in gas and railway stock at judicious moments. He remained assistant editor definitely for about four years, but during much of his life his association with the paper was very close. The post of assistant editor did not then entail the interviewing, letter-writing and office routine which later were called for, and daily attendance was not called for.

In the year 1845 T. H. Wakley took the Membership of the Royal College of Surgeons of England, having previously proceeded to Paris in deference to his father's views that the scheme of medical education enjoyed by the Parisian students was preferable to that of the London medical schools. In Paris he lived with Dr. J. Henry Bennett, a well-known gynæcologist, and was an assiduous attendant at the cliniques of the best operating surgeons in the city. When he was not engaged in medical studies he spent his time and his money in taking music lessons, with the result that when he returned to England he was a trained musician and good French scholar, as well as a surgeon of large experience considering his age. In the year 1848 he was elected assistant surgeon to the Royal Free Hospital, a hospital which had been started as a protest against the system of letters by which subscribers to the medical charities of London were able to dispense patronage upon exclusive principles. This hospital made a great stride forward in 1842, when it was removed to its present site, and the appointment formed an admirable opening for a young surgeon. Wakley entered into the spirit of his duties with enthusiasm. He felt that he had got his chance while he was a junior man, but, although he was by no means blind to the advantage of having his father and THE LANCET at his back, he set out with the intention of making a name for himself in surgery. He took a house in Guilford-street so that he might be near the hospital, and for several years became, more or less on his own initiative, casualty surgeon to the institution. His house was so near to the hospital that it was inevitable that the resident staff should appeal to him in all cases of difficulty, and he was delighted with the opportunities which he thus got for increasing his experience.

He soon found that the value of having a distinguished father, who was also aggressive, had its drawbacks. If there was one point on which that father had been more clear than another it was the mischief done at the metropolitan hospitals by the appointment, through nepotism, of the wrong man. When, therefore, the son of the Editor of THE LANCET, while still quite a young man, and with a record for work behind him which had largely been accomplished in another country, was appointed to the staff of the Royal Free Hospital, all the critics of THE LANCET were prepared to consider that the appointment was an example of the very abuses against which THE LANCET was ever fulminating. The second Thomas Wakley soon became conscious that his hospital practice was attracting an amount of interest not usually manifested in the work of so young a practitioner, and both father and son were ill-advised in the publication of frequent communications in THE LANCET over the son's name. But when the attack came its victim was not found unprepared. He was accused of malpraxis at the hospital, refused to pay blackmail to the parents of the child on whom he had operated, and disregarded a scurrilous and indecent pamphlet purporting to be a record of the case, although this was hawked about the street where he lived. An action was at length brought against him *in formâ pauperis*, and the accusation came at an extremely inconvenient moment, for he was intending to present himself, just about the probable date of the trial, at the final examination for the Fellowship of the Royal College of Surgeons of England, instituted six years before. Some of the examiners had been subpœnaed to appear for the prosecution, but he resolved to present himself, and passed on Dec. 6th, 1849, a date which, by the way, bracketed him at the time of his death as senior Fellow of the College. The trial came on Dec. 10th, and was a triumph for Wakley. The only surgeon called for the plaintiff gave evidence for the defendant, the unanimous and authoritative opinion of whose witnesses could not be questioned. The private malevolence which, together with the hope of blackmail, had instigated the prosecution was fully revealed, and the jury, who had previously manifested a desire to stop the case, found a verdict for Wakley without leaving the box.

The ordeal probably increased his professional status, for shortly afterwards he migrated to Arlington-street, where he gained a considerable practice as a general surgeon and made a special study of orthopædics. He also invented several instruments which had a certain vogue for a time in urethral surgery, and he appears to have been the first observer to see the use to which glycerine might be put owing to its hygroscopic properties. But when in 1862 his father died, while the editorial conduct of THE LANCET passed to James Wakley, Thomas Henry Wakley, as part proprietor of the paper became actively interested in its conduct. For many years, while still in practice, he came

EDITORS AND PROPRIETORS OF THE LANCET

THOMAS H. WAKLEY.

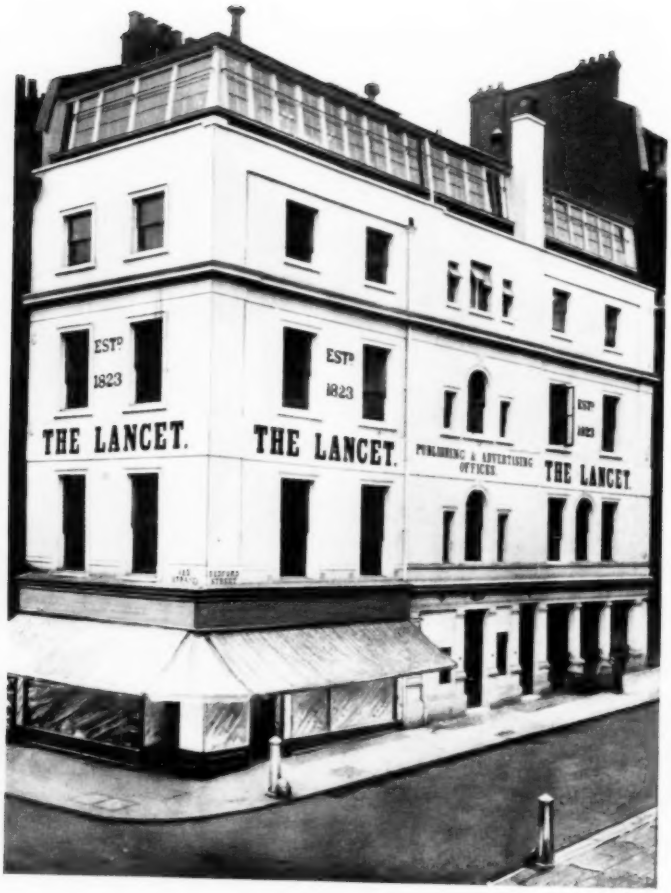
JAMES G. WAKLEY.

THOMAS WAKLEY, JUN.

JAMES G. GLOVER,
Ethical Adviser for 30 years.

SIR SQUIRE SPRIGGE.

SIR ERNEST HODDER-WILLIAMS,
Chairman.



THE OFFICES OF THE LANCET.

daily to THE LANCET offices, finally retiring to become manager, and later Editor, in joint editorship with his son, the third Thomas Wakley.

Many can recollect Thomas Henry Wakley, who died in 1907 at the age of 86. Of unbounded activity, physical and mental, he was never ill and never absent. In all weathers and on all occasions he arrived in the early morning at his desk. For many

FIG. 36.—SIR ANDREW CLARK.

years he spent the winter months in Brighton, but he never allowed this to interfere with his regular and punctual attendance. So late as 1903, when he was in his eighty-second year, he made the journey from Brighton to London and back daily, giving the lie to the gloomy prognostications of the effect of such transits on elderly persons. During the last decade of his life the editorial management of the journal passed from the hands of the father to the hands of the son, but to the end the senior showed no abatement of interest in the details of the paper. One subject he retained in his own hands entirely. During all the period in which he was associated with the editorship of THE LANCET great prominence was always given to the work of the Hospital Sunday Fund, largely founded by his brother. Thomas Henry Wakley resolved that the interest manifested by his brother should not be allowed to die out. He personally supervised the publication every year of a special supplement issued in the interests of the Fund, and only with great reluctance permitted this feature of the paper to be modified when it became clear that the movement was established permanently in the public mind as one to be supported. His deep sympathy with the material welfare of the medical profession was shown not only by his acts of private generosity but by the institution of a relief fund intended to meet unforeseen and urgent pecuniary exigencies among members of the medical profession. His particular adviser in these matters was Sir Andrew Clark (Fig. 36), who published much of his comparatively few writings in our columns. But the friendship between him and the editor had little or nothing in connexion with them. To Clark he went when he wanted an opinion on medical situations, when the view of a man of the world as well as a professional leader was needed, and a real friendship was always maintained between them.

The proved utility of this scheme of practical generosity was always a source of great satisfaction to its originator, and the Wakleys, father and son, during their editorship, disbursed some £6000 in this way before the situations which it had been designed to meet no longer arose or were better met otherwise. T. H. Wakley was also a warm supporter of Epsom College, his advocacy of this foundation taking the practical form of a donation of £1000, given in the name of the proprietors of THE LANCET. Throughout the whole of the editorship of Thomas Henry Wakley he was loyally assisted by his son, Thomas Wakley, jun., who was already conversant with the mechanical side of newspaper production. And circumstances allowed at this time opportunities for peaceful development.

SOME LOYAL FRIENDS.

James Wakley upon his death-bed left behind him a message to the readers of the paper, which was duly published in THE LANCET. In this message he desired to record "that he had been materially aided in anxious editorial work by Mr. John Tweedy, Dr. J. A. Marston, and Dr. J. G. Glover, with whom he had for many years been very intimate, entertaining great regard and esteem for them, and having great reliance in the soundness and fairness of their judgment, their scientific and literary ability, and the integrity of their character." He was also anxious that tribute should be borne to the work done by Dr. A. H. Hassall, when THE LANCET exposed the adulteration of the food of the people, and "to the long and faithful services of Mr. H. A. Beckett, the present sub-editor of the journal." A few words on the character and work of these valuable friends are fitting.

Henry Arnold Beckett (Fig. 37), sub-editor of THE LANCET at James Wakley's death, was an interesting personality. He had been connected with the paper, first in the printing and later in the editorial departments, from boyhood. He was brought over from the printing department by the original Thomas Wakley, who had been attracted by his gift of memory. THE LANCET was still of moderate size,

and Beckett became the editor's private proof-reader. With untiring industry he read the proofs of the whole paper, and what was at first a rule-of-thumb proceeding became in time a highly intellectual performance. For Beckett was determined to understand the gist of what he read, and in the course of his duties became an absolute dictionary of information on professional subjects. Not only

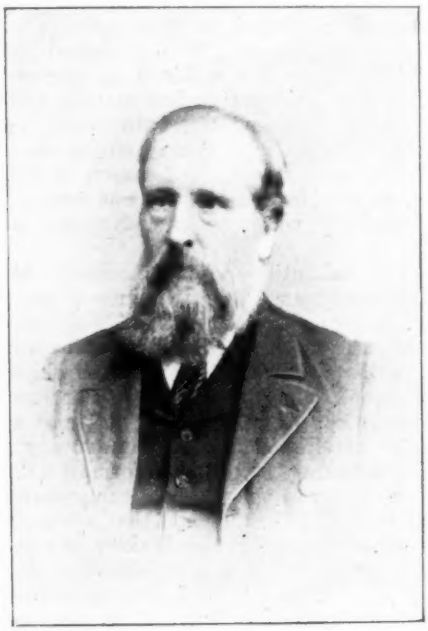


FIG. 37.—H. A. BECKETT.

did he know the personalities and literary records of hundreds of medical men, but he obtained from them explanations of their words, and sometimes of their actions, which enabled him to follow arguments and disentangle differences of opinion. He had no medical education, but he obtained a wide if theoretical knowledge of medical science in three different ways simultaneously. He supervised the indexing of THE LANCET for years, and his recollection of back numbers was extraordinary: his large and variegated reading was so carefully performed, and with such attention to the author's meaning, that much of the essential teaching was made his own: while the numerous interviews that he had with medical authors concerning the contents of their papers were always turned by Beckett into opportunities for increasing or revising his knowledge. Lister personally explained to Beckett the reasons of many of his procedures, in order to make quite clear to him why he considered some of the objections taken to them mistaken or unfair.

Sir John Tweedy, Surg.-General Marston, and Dr. Glover remained to support the new Editors, and of these the first is still with us, and it is entirely unnecessary to tell a medical audience what part he has played in medical life or to embarrass him by recording the unanimous view of the high and sterling quality of his scientific and official work. But it must be recorded in a history of THE LANCET that Tweedy had been definitely offered the editorship of the paper with which he had been connected closely since the age of 21, and for which he had done such splendid work as general surgical supervisor, discharging at the end of James Wakley's life all the functions of a joint editor. Acceptance of the offer would have entailed a sacrifice of prospects which, tempted though he was by many of the aspects of journalism, he could not consider. But until his professional commitments made it impossible, he continued to help the paper week by week for many years; indeed, to-day we call upon him, and have done so freely in the compilation of this record.

Surgeon-General Marston was for many years our adviser upon all medico-military subjects, and the numerous editorial articles advocating reforms in the Services, detailing grievances or applauding advances, which appeared throughout a period of great changes, were mainly from his pen. His views were conservative, and he did not always see eye to eye with those whose interests he was most concerned to maintain, but the soldier-doctor never had a warmer friend. He entered the Army Medical Service in 1854, and soon made his mark both as scientific and executive officer. As a surgeon-major he superintended the scheme for a hospital-ship service with the Ashanti expedition (1873–4), and in 1877 was the medical member of the Committee appointed by the Secretary of State for War to draw up the dietary for military prisons. In December of the same year he was appointed secretary to the Principal Medical Officer of the British Forces in India, in which capacity he prepared the schedule of field hospital organisation for the Afghan War. His work proved of great value, and in 1882 he was appointed sanitary officer to the Egyptian expedition and was present at the Battle of Tel-el-Kebir. He was later head of the Statistical and Sanitary Branches at the Army Medical Board and during his official life he kept closely in touch with scientific medicine. His lectures on military hygiene to the medical officers at the Army Medical School at Netley were valuable résumés of the known, as well as sound forecasts of probable developments. In the autumn of 1887 he was sent by the War Office as a British army medical delegate to the Ninth International Medical Congress held at Washington, and in 1888 he went to Egypt as P.M.O. of the British forces serving there, and was responsible for the medical arrangements connected with the contingent sent to Suakim. On his promotion to the rank of surgeon-general, in 1889, he was transferred to Gibraltar, whence he returned to retire from the Service. After his retirement he became President of the Army Sanitary Commission and a member of the Indian Medical Board. Perhaps the most valuable official document for which Surgeon-General Marston was responsible was his report to the War Office upon the Washington Congress mentioned above. In this report he emphasised the importance, especially in field operations, of reducing as much as possible the number and bulk of medical

remedies employed, and testified in the early days of compressed drugs to the usefulness of carefully-prepared tablets. His favourite anticipation for the British Empire, however, was an Imperial Defence Service, in which room would be found in different sections of the service for all good qualifications, whether physical or mental. For 30 years, whenever his conditions of service allowed, Surgeon-General Marston was a regular member of our staff, and although in the decade before his death in 1911 he had ceased to give much active help, in matters of which he had expert knowledge, his advice was often sought up to the last week of his life. During his periods of practical journalism he was found by all his colleagues to be a combination of good nature, wide reading, and shrewd criticism. He had a great sense of the dignity of the medical profession, but at the same time was contemptuous of a too narrow professional spirit, and it was this attitude which led to a belief among the most advanced in the demand for a Royal Army Medical Corps that we were not sufficiently warm in putting forward their views. Marston's frankness of diction in the columns of THE LANCET did not always please the professional public, but his simplicity and directness delighted those with whom he came into personal contact.

Dr. James Grey Glover exerted a wide influence over the policy of THE LANCET for a period of 37 years. He graduated at Edinburgh, came under the powerful influence of Christison, Goodsir, Alison, Syme, and Simpson, and arrived in London in 1864 at the age of 32, when he started in general practice in Highbury, living for most of the time at 25, Highbury-place, the house which had once been the home of Joseph Chamberlain. He was a Whig, a nonconformist, and a highly-endowed practitioner, who regarded the profession of medicine as a noble mission. He was well-read in general English literature, especially that of the eighteenth century, which gave to his writing a combination of clearness and classical flavour. He was a deeply religious man, with as strong a desire to remedy social as physical ills. Before leaving Edinburgh he had sent to THE LANCET an article entitled "A Physiological View of the Premier, Lord Palmerston," which had attracted much attention, had been copied into scores of newspapers, and made the subject of verses in *Punch*. On his arrival in London James Wakley invited him to send further communications, and soon found Glover a trustworthy and sagacious colleague. He became James Wakley's lieutenant in all the Metropolitan Hospital Sunday Fund movements, and continued to act in that capacity, but his special work at THE LANCET, under the new Editors, was to take charge of all questions affecting general practice. When in 1886 direct representation of the profession on the General Medical Council was secured, Glover was elected at once and was re-elected time after time for 16 years until his retirement.

The status of the general practitioner had risen enormously under the Acts of 1858 and 1886 and a large number of new questions had arisen, such as the registration of midwives and the use or abuse of unqualified assistants. Discussion of these topics was frequent and free over many years, and their conduct was confided to Glover.

REGISTRATION OF MIDWIVES.

At the close of the century there was a plethora of suggestions for dealing with the question of the unregistered midwife. An important Bill was prepared by a subcommittee of the British Medical Association, a Midwives Registration Bill had been introduced into the House of Commons by Mr. Tatton Egerton, and there were two private Bills before the House which represented movements owning considerable support. This variously promoted group of measures may be taken as a proof of complete recognition that pregnant and parturient women in the lower classes were not sufficiently protected from the risks of childbirth. The rates of mortality due to the ignorance and dirtiness of unregistered midwives, many of them old ladies who attended a lying-in or a laying-out with equal relish, were so variously stated that the best informed took refuge in such rough statements as "hundreds of thousands of women die every year from these evils," but no one contested the presence of the evils. Not only were there wide divergencies in the various measures advocated as a remedy, but opinion in medical ranks as to the necessity for the registration of midwives was divided. And those members of the medical profession who were prepared to let things remain unaltered were not displaying either want of humanity or supineness: they believed that under the régime of registered midwives midwifery as a science and art would degenerate and would cease to be kept up to the standard of the great branches of practical medicine and surgery. They also believed that with the registration of midwives the practice of midwifery in normal cases would pass from them, a loss which was not to be measured so much in money as in influence and responsibility. Midwifery practice among the poor was not lucrative, but it brought the practitioner into intimate relation with the home. To a limited extent—and 20 years ago it was limited—the medical man who attended the confinement became aware of the antenatal circumstances, while the after-care of the children devolved naturally upon him. With these things in their mind there grew up among many doctors opposition to the principle which inspired the numerous Bills, as well as a very critical attitude towards each measure.

Accordingly a comparatively large number of practitioners opposed all measures for the registration of midwives, and the agitation lasted some years. Its steps do not require to be chronicled here, but within THE LANCET it had grave consequences. The General Medical Council had come to the conclusion, which no one to-day can think otherwise than a right one, that the registration of midwives was badly needed in the cause of common humanity, while the Senior Direct Representative of the profession on that Council, Glover, was known to be our trusted adviser on questions of public policy and the relations of the medical profession to the public at large. Neither the

Wakleys nor Glover had any hesitation as to which side the paper should take, but the course adopted was not popular with an appreciable fraction of our readers. It was decided to make an attempt to ascertain the general feeling of those medical practitioners whom the proposed legislation immediately concerned. The Bill did not contemplate Scotland or Ireland in its working. We addressed a circular to the English medical practitioners and received a number of replies which was unexpectedly large, having regard to the fact that a large proportion of persons never answer circulars, and that a certain proportion of those to whom our questionnaire was addressed considered the absence of personal interest to absolve them from reply. Over 6000 English practitioners replied immediately, and of these 1817 considered that no legislation was required, of whom 1530 were also and for specific reasons opposed to the Bill before the House; 1323, while opposed to the Bill, desired to see legislation for putting down many of the practices in vogue among unqualified persons; 433 while approving legislation for regulation of the practice of midwives were not in favour of the particular Bill; and 1311 medical men were in favour both of legislation for the regulation of the practice of midwives and of the Bill. Six hundred and eighty-nine medical men did not answer the questions with a simple "yes" or "no," but wrote letters explaining their views, and the analysis of these letters showed that 445 were opposed to the Bill. The total was made up of those who wrote to express indifference to the whole matter, the one thing emerging being that of 6299 medical men only 1311 were in actual favour of the Bill before the House. A little over 1000 belated replies confirmed the proportion of these figures. We like to remember that, although at the time the policy was not one which improved our circulation, we interpreted these figures rightly in believing that they implied far more apprehension of the results of a particular measure than a whole-hearted opposition to the principle of registration of midwives. An Act to secure the right training of midwives and to regulate their practice was passed in 1902, but was severely criticised at the time in our columns. The measure during two years' delay and disputation had been altered in shape and not for the better, but our main opposition to it was that it did not conform to the directions of the Privy Council that certain points should be conceded in deference to the views of the General Medical Council. As we anticipated, many hard circumstances arose under the Act, which was amended in 1918 in favour of the existing legislation.

THE LANCET COMMISSIONS.

A testimonial to the work done by Dr. A. H. Hassall and those who collaborated with him in carrying out the Analytical Sanitary Commissions formed part of James Wakley's dying message. Hassall's share in that work has been described at length, and a series of independent inquiries of all kinds was undertaken for many years on the same pattern, or with the same broad object. The scheme took a permanent form, a chemical laboratory was installed in THE LANCET building, and investigations were made on the spot and reported upon in the columns of the paper. As far as the chemical and analytical work was concerned, it was supervised for the 33 years between 1860, when Hassall became only an occasional assistant, and 1893 by C. W. Heaton, who held at different times examinerships in chemistry at the Royal College of Physicians, London, and the Royal College of Veterinary Surgeons, was public analyst for St. Martin's, treasurer of the Society of Public Analysts, and an original Fellow of the Institute of Chemistry. Heaton's first appointment was to lecture in chemistry at Charing Cross, but he had previously been science master at Epsom College, and the two things determined his invitation to join the staff of THE LANCET. First, the proximity of Charing Cross made it possible for Heaton to deliver lectures at the Medical School while attending to THE LANCET Laboratory, and, secondly, his connexion with Epsom was a very sound introduction. Moreover, Heaton had written, and was writing, scientific articles for the *Saturday Review*, so that as a practised journalist he was particularly well equipped for our post.

But, as important as any of the work done in the Laboratory, were Special Commissions set in motion to inquire into various defects associated with social machinery understood in the broadest way. While Heaton's work may be considered as a sequel to that of the brothers Henry, Letheby and Hassall, the other Commissions were more on the pattern of the inquiry made by Anstie and his collaborators into the Condition of Workhouse Infirmaries or the inquiry into the Conditions and Influences of Railway Travelling.

We can illustrate the range of these inquiries by some of their titles. Analytical Sanitary Commissions were instituted to inquire into Opium and its Adulterations; into the Constitution of Coloured Confectionery, which was frankly termed poisonous; into the Adulteration of Popular Beverages like Porter and Gin.

Inquiries into the character of the food-supply of great cities like Manchester, Liverpool, and Leeds were made on the spot. Other reports, the result of first-hand investigation, dealt with the Water-supply of London, the Hygienic Condition of Aldershot Camp; the Out-patient Departments of Metropolitan Hospitals; the State of Workhouse Hospitals (a second inquiry); and the Sanitary Arrangements at Public Schools, among which may be mentioned Wellington, Marlborough, the Blue-coat School, Eton, Harrow, Winchester, Shrewsbury, Rugby, and Uppingham. Other inquiries dealt with the health of children in large pauper schools, night nursing at hospitals, and the sanitary condition of the chief English watering-places.

Many of these inquiries make good reading now, and the fact that it should have been left to a newspaper to set them in motion is a striking proof of the subsequent growth of sanitation in this country.

It was absolutely necessary that such matters should be looked into for the good of the public health, but inquiries undertaken by a newspaper would have been an intolerable interference had there been properly constituted authorities to undertake the work and shoulder the responsibilities. It is needless to say that the actions of THE LANCET were often bitterly resented, as at Brighton, but the public motive at the back of the work, and its unprofitable nature, ensured the popularity of our efforts. It may fairly be claimed that the revelations made year after year in the columns of THE LANCET inspired sanitary legislation in every direction. This is not to suggest that everyone else was blind to the abuses revealed. Certainly many of our inquiries were made in reply to requests from those who, from personal knowledge, were aware of what would be discovered, while other observers besides the staff of THE LANCET were alive to the fact that legislation along certain lines would abate abuses. But, where the work of THE LANCET was not original, it was at any rate vocal, and when its voice was felt by those affected as a profoundly disagreeable one the necessity for raising it was justified. The last six Commissions instituted by James Wakley, not including his continuation of the inquiries into the conditions of lunatic asylums and sick infirmaries attached to workhouses, were the following: Spread of Disease through Laundries; Contamination of Uniforms Provided by the Army Clothing Depôt; Ventilation of Police-courts, and, later, of the new Royal Courts of Justice; and the Pollution of the River Thames at Henley Regatta. To some of these further allusion will be made.

BRIGHTON DRAINAGE.

Against one of the most famous watering-places in the country THE LANCET appeared to have a grudge, but in the end the community admitted that they never had a better friend than their candid critic. The subject was returned to on several occasions, until all need for interference was gone, and is selected for reference out of the long list given above as an example of the way in which the Commissions were designed to deal with public things in a medical manner, and in a shape that would be useful to other communities than the one concerned.

In 1862 two long and plain-spoken reports were published showing by chemical and microscopical analysis the impurity of the drinking-water at Brighton, and giving full evidence as to the disgusting nature of the contamination to which the front was exposed. At that time three-fourths of the houses drained into cesspools without any outlet, while the sewage from the remaining fourth was thrown into the sea in front of the houses, where it formed an intolerable nuisance. Brighton resented the report but acted upon it, and there was an extension of the drainage system by which the bulk of the sewage was carried a third of a mile east. This was in 1864, but in 1868, it having become clear that the measures taken were inoperative, a further report was published pointing out that the drainage of the town was still imperfect, that the bathing in the front was being fouled in a disgusting manner, that 10,000 cesspools were still in operation, and that only 4000 houses were connected with sewers. A torrent of indignation fell upon THE LANCET from those interested, but the corporation of the city was roused to vigorous action and a resolution was taken to deal at once in a liberal spirit with the whole difficulty. By 1874 a main intercepting sewer had been constructed which carried the sewage to an outfall four miles further to the east, when a second report was made on the drainage conditions of the town. In this, THE LANCET, while offering congratulations to the municipal government upon their action and acknowledging the improvements which had taken place, found fault with the ventilation and recommended further inquiry. As a result, Sir Joseph Bazalgette reported on the sewage of Brighton, when his words afforded complete justification of what appeared to be attacks made unjustifiable by their reiteration. And so at last the great health resort became the splendidly sanitary city it now is.

The Editors of THE LANCET then went to Brighton regularly for the winter months of many years, and thus designedly or accidentally showed their certainty that no more criticism of the drainage was called for. The *rapprochement* was poignant, for at one time many Brightonians spoke loudly of bringing actions against THE LANCET for damage of their house property and businesses, while the Wakleys on their side were only with difficulty restrained from proceeding for libel against certain members of the Brighton town council, who said that the unfavourable reports upon Brighton as a health resort were due to the fact that the Editors of THE LANCET had acquired property in the neighbourhood of a rival health-resort.

THE LAST THIRTY YEARS:

THE STAFF OF "THE LANCET."

IN 1893 THE LANCET was under the editorship of Thomas Henry Wakley and his son, the third Thomas Wakley, and of those mentioned as having conducted the paper during James Wakley's long and fatal illness, Glover was still the principal adviser on medical politics and organisation, and Marston remained to direct our views on Service and other matters with which his long public career had made him familiar, while THE LANCET Laboratory was under the direction of Samuel Archibald Vasey, Heaton's pupil and assistant, who had succeeded him as director. Upon Tweedy's help we could always rely. In this year Dr. Squire Sprigge, the present Editor, was appointed assistant editor, the internal staff being immediately afterwards strengthened by the presence of Dr. H. P. Cholmeley. Beckett was still in regular employ, but a breakdown in his health had made his attendance at the office largely a matter of personal desire to stay in harness, the sub-editor's duties being discharged by the late Dr. W. L. Brown. In the following year Mr. Charles Good became the general manager.

This small internal staff was advised along the obvious lines of general and special work by a body of collaborators of whom the list follows, and the number whom it was considered necessary to call upon for help is a direct revelation of the way in which medical science had recently spread. The external staff in 1893 was four times the size it had been 20 years before; in fact, to-day it is not larger, and for two reasons. First, there are many places in which medical activities have become more concentrated, while running more in accordance with some accepted plan, making it unnecessary to publish certain things either so often or so much in detail. But, secondly, medical science and medical organisation have progressed in so many and such varying ways that no restricted staff, however large, could possibly either record the happenings week by week, or deliver any but the most perfunctory opinions upon them. This has necessitated the regular invitation of particular persons to assist us along particular lines, whereas in 1893 the Wakleys attempted to collect a group of collaborators who showed themselves able to deal immediately with anything scientific or social which should present itself to notice week by week.

The names now given are those of the staff in 1893.

COLLABORATORS IN 1893.

The list is taken from an old ledger, whose contents are protected by padlocks, a reminiscence, no doubt, of the sad old times when it was necessary to protect the author of, say, an "Intercepted Letter" or a "Medical Biography" from the consequences of his humour:

*J. H. Barnard, A. Boggs, *E. Bar, Dudley Buxton, W. H. Battle, J. W. Byers, J. H. G. Brock, H. T. Bulstrode, John Curnow, Sidney Coupland, F. G. Clemow, H. Radcliffe Crocker, Richard Davy, C. Duncan, *R. Ellis, W. H. Evans, C. Fleming, A. Pearce Gould, J. W. Gordon, W. R. Gowers, C. Hime, *C. A. Hodgetts, Noel Humphreys, Leopold Hudson, W. S. Hedley, C. J. Huddart, F. W. Lowndes, James Lindsay, A. H. N. Lewers, Shirley Murphy, B. G. Morrison, Theodore Maxwell, A. Macgregor, John C. McVail, A. Napier, David Nicolson, Henry Power, Vivian Poore, A. J. Pepper, *M. C. Prendergast, C. H. Robinson, William Russell, Walter Rivington, Benjamin Ward Richardson, C. H. Ralfe, *F. Ransom, R. D. Sweeting, H. Simpson, Adolphe Smith, *J. P. Steele, *G. R. Saunders, A. M. Sheild, G. A. Syme, F. G. Sandwith, *Stephen Smith, C. Shoveller, Nestor Tirard, James Taylor, John Tatham, G. Thin, F. J. Wethered, E. F. Willoughby, W. Essex Wynter, W. W. Webb, G. Sims Woodhead.

In this list, which at such a lapse of time there can be no indiscretion in publishing, the names marked with an asterisk are those of foreign correspondents, the countries represented being France, Italy, Germany and Austria on the Continent, Egypt, Canada, Australia and New Zealand. A sad number of these have died during the 30 years that have elapsed since the ledger list was compiled, but this, of course, could only be expected; on the other hand, the majority survive, and many of them are still working in a distinguished manner in the profession. We must here record our sense of gratitude for their help, and if it is done in bald or general terms the reasons for avoiding adjectives are obvious. Those who are alive would not desire to be reminded of their merits, while the mere names of many of them will enable a medical public to recognise their worth without any testimonials from us. But there is a group of men among these who must be mentioned in our centenary number with some particularity because of their long and intimate connexion with us. Dr. Sidney Coupland, Mr. W. H. Battle, Mr. Adolphe Smith and Dr. Dudley Buxton, among those who still happily live; and Sims Woodhead, Pearce Gould, Shirley Murphy, Bulstrode, and Vivian Poore, among those who have gone—these were the principal leader-writers or heads of departments for many years, in conjunction with Glover, Marston, Sir John Tweedy, Vasey, Cholmeley, and the present editor. Under the section of Anæsthetics there has been indicated the long and heavy work entailed upon Dr. Buxton, who kept us fully informed upon his own speciality for so many years.

MORE OLD FRIENDS.

Three whose names are in the enumeration for 1893 rendered the greater proportion of their help earlier. From the days of James Wakley onwards their learning and judgment, in widely differing capacities, was a source of pleasure and information to our readers. They are Sir Benjamin Ward Richardson, Henry Power, and James Peddie Steele. Benjamin Ward Richardson (Fig. 38), trained in the Universities of Edinburgh and Glasgow, joined the staff of THE LANCET in the early fifties, having been introduced to the first Wakley by Douglas Jerrold. He was physician to many public charities, though not attached to any general hospital. He gained the Astley Cooper Prize and the Fothergillian Gold Medal of the Medical Society of London, and was a great sanitary reformer and humanitarian. He did much original work in anæsthetics, was elected an F.R.S., and delivered the Croonian lectures at the Royal College of Physicians. The most open-minded and generous of men, there was a time when his animosity and that of Christopher Heath to Ernest Hart were embarrassing to the Wakleys, who had no desire to prolong a sterile series of bickerings, and for a period his contributions ceased. His range of general knowledge was immense. He wrote in poetry and prose, and produced practically single-handed a journal embodying researches in the science, art, and literature of medicine, *The Asclepiad*, which as an annual, and later as a quarterly, had a life of over 30 years and contained much interesting and valuable matter. His articles, sometimes signed, but mostly unsigned, in THE LANCET dealt accurately with questions of pharmacology and therapeutics, forensic medicine, domestic sanitation, veterinary surgery, and especially the question of total abstinence. He was a convinced teetotaller, but none the less found alcohol to be a valuable drug if competently administered.

James Peddie Steele, also thoroughly trained at Scottish Universities, was known as a scholar in Edinburgh before he came to London, nominally as a physician but really as a journalist. Under James Wakley he was a regular leader writer on the staff, and when, about 1880, he went to Rome and

obtained a large and good practice, he continued to write editorial articles, while as our local correspondent in Rome, and later in Florence, he kept the paper closely in touch with Italian medicine. He was a sound classic and a really famous Latinist, and his leading articles, which appeared in some of the best known lay journals as well as in THE LANCET, could generally be detected by their successful use of the old-fashioned Latin period to display an advanced spirit of medical research. On retiring from practice in Rome he went to live in Florence, where his villa became the centre of open-handed hospitality. He was the personal friend of the leaders of Italian scientific and social thought, who had opportunities of meeting at his table representatives of English scientific and academic life. He wrote in these pages until his death in 1917.

FIG. 38.—SIR BENJAMIN WARD RICHARDSON.

Henry Power (Fig. 39), ophthalmic surgeon to St. Bartholomew's Hospital, was for over 40 years a regular member of our staff. His varied literary work showed well his industry and wide range of exact knowledge, but the particular services which he rendered to THE LANCET were allied to the fact that he edited the sixth, seventh, eighth, and ninth editions of Carpenter's Principles of Human Physiology. He was a really great student of all the manifestations of life. He had read widely and in several languages anatomy, physiology, and botany, and week after week and year after year in our columns he summarised continental knowledge of these subjects or sat in genial judgment upon medical writers, when so closely accurate were his appreciations, and so obviously fair and friendly his reservations, that no author was even moved to protest against his criticisms. No member of the staff of THE LANCET was ever more missed than Henry Power when retirement from London broke his intimate association with us.

Gowers, the author of the "Manual of Diseases of the Nervous System," was a great investigator and observer as well as a successful expositor of the theories of Hughlings Jackson. He wrote largely in our columns both editorially and above his signature, and was not an easy man to work with. While he was an extraordinary observer with a wide horizon and sound judgment his sweeping deductions, preceded by no exposure of reasons, were embarrassing, and when the consequent obscurity was pointed out to him he disliked the process. But in a difficult field of medicine Gowers kept us well informed, and it was through his intervention that Hughlings Jackson's delightful series of "Neurological Fragments" appeared in our columns for many years—veritable chips from the workshop of a master mind. But before the "Fragments" appeared we had published many of Hughlings Jackson's important communications in our columns, the two last illustrating well the range of this remarkable man's work. The former dealt with eye symptoms in locomotor ataxy, and the second was an address on the psychology of joking in which a solid and unpretentious philosopher defended with great humour the value of punning. His argument in his own words is :—

"I say that the process of all thought is double, in degrees from a stereoscopic unity of subject and object to manifest diplopia (two objective states for one

FIG. 39.—HENRY POWER

subject). The process of all thought is tracing relations of resemblance and difference from simplest perceptions—to say what a thing is, is to say what it is like and unlike—up to most complex abstract reasoning. The formula of the charicature of the normal process of thought is the 'pretence' of some resemblance between things vastly different—from punning where the pretended resemblances and real differences are of a simple order, up to humour where

FIG. 40.—HUGHLINGS JACKSON.

both are highly compound. We have the 'play' of the mind in three degrees of evolution, three stages of exceedingly complex incongruousness." (Fig. 40).

For an extended period Dr. Coupland was our general adviser in clinical medicine, until he was succeeded by Dr. F. J. Wethered on his appointment to a Commissionership in Lunacy. A cursory view of the matters that came before him is furnished by the résumé of clinical progress in the 'eighties, and no member of the staff was more frequently consulted, or called upon to formulate early opinions upon new departures. Mr. W. H. Battle was the editor of the Mirror of Hospital Practice (of which more will be said briefly), while the late Sir Alfred Pearce Gould became the principal leader-writer on surgical subjects; Vivian Poore wrote regularly in an editorial capacity on medicine in connexion with public health, and the early articles on electro-therapeutics were from his pen; Dr. Dudley Buxton's exhaustive summaries of the developments in anæsthetics, and Sims Woodhead's similar treatment of bacteriology, enabled us to keep our readers up-to-date in two sections of medicine that were at that time progressing in different and highly technical ways. Bulstrode and Shirley Murphy were our advisers on public health on such terms as their official positions permitted. To both THE LANCET was and is under unpayable obligations. To recall here the manner of man that Shirley Murphy was would have a flavour of impertinence, so recent is his death and so widely known his surpassing merit as a sanitarian. But Bulstrode is in different case. He was in full exercise of fine qualities as administrator, technical adviser, and scientific investigator when he died suddenly. He was permitted by his chief, Sir Richard Thorne Thorne, to keep THE LANCET advised on public health matters, and his clear articles upon situations as they arose were of special value to our public.

THE INFECTIOUS DISEASES NOTIFICATION ACT.

As an example of Bulstrode's work, and also of the endeavours of THE LANCET at the time, there may be adduced a series of editorial articles upon the difficulties which arose under the Infectious Diseases Notification Act. The Act came into being in 1889, but its working was found difficult not so much because the measure was unpopular with the public—though it was that—as because a strained position arose between the private practitioners and the State officials. This became quite serious, and time did not relieve it. In 1895 we were so frequently asked to advise correspondents in difficult and delicate positions, that it was decided to collect together in one set of articles the principal points as to which procedure was doubtful. It seemed certain that actual misunderstanding on both sides was occurring alike as to the meaning of the Act and the spirit in which it was interpreted, and Sir Richard Thorne Thorne, then Principal Medical Officer to the Local Government Board, desired to have the various matters thrashed out. Accordingly we placed on record in Bulstrode's articles the various decisions and official interpretations which had been given with regard to difficult points, and reading those articles now we can see that neither the medical officers of health nor the general practitioners were at first quite certain what new obligations had been imposed on them. For example, some local authorities believed that the Act laid the duty upon the medical officer of health to make domiciliary inspections, and when many of these officers realised that the Act put no obligation of the sort upon them they found that neglect to perform it was quoted against them in questions of adjustment of salary. And in those days the tenure of office of medical officer of health was far more precarious. The situation was set right by a definite statement of the Local Government Board that the Infectious Diseases Notification Act of 1889, where adopted, conferred no new powers upon the medical officer of health, being "designed to afford him such immediate information of the outbreak of infectious

diseases as will enable him promptly to take such measures as are prescribed, &c." This Order made it clear to the local authorities that where an outbreak of any contagious or infectious or epidemic disease of a dangerous character had been notified it would naturally become their officer's duty to make personal inspection, but that he was not expected or desired to make domiciliary visits.

The advice given in THE LANCET with regard to domiciliary visits shows well how delicate the relations on the passing of the Act had become between the State officer and the private practitioner. Stress is laid on the fact that in the majority of instances in which cases of infectious disease have been notified there is no need for the medical officer to personally inspect the sick chamber, while this should only be done with the consent of those having charge of the patient and after securing the coöperation of the general practitioner. Throughout all the articles it is urged upon the medical officer of health to use the help of the medical practitioner in attendance on the case, and the same principle, it is pointed out, should be extended to the inspection of premises. In short, the view is strongly held that the customs usually governing the relations of medical practitioners to each other should prevail between the medical officer of health and the general practitioner. Our articles stated that it was not the intention of the Act relating to notification to lead to the visiting and examination of sick persons in ordinary circumstances, in spite of the fact that public health authorities might consider such measures to be the only way in which the correctness of certificates of notification could be ascertained. The Local Government Board upheld our view, whose correctness was indicated by the fact that no increase of salary came to the medical officer of health by the passage of the Act, implying that the duties of a private practitioner were not to be added to the public responsibilities. The general conclusions arrived at are worth recording, for they show the places where disputes had arisen, and may serve as a useful reminder to legislators how inexpedient it is to pass laws without ascertaining from those who really understand professional situations how far ambiguity of words or meaning may lead to mystification.

The conclusions, which at once settled much disputing, were :—(1) The question of a personal visit by the medical officer of health is a matter to be decided by the medical officer of health, he being the judge as to what constitutes an "outbreak" for the purpose of the Order relating to his duties. (2) No duty attaches to a medical officer of health to "visit . . . the spot" in every case of notified disease. (3) When he deems it his duty to pay such a visit he should remember that, apart from a magistrate's order, he cannot claim a right of entry on such ground. . . . (5) The medical officer of health has no right to inspect patients, and, as such inspection is, as a rule, very undesirable, it should not be contemplated even when it is necessary, except after communication with, and if possible in coöperation with, the medical officer in attendance on the case.

THE MIRROR OF HOSPITAL PRACTICE.

There are many instances in which certain features of THE LANCET which had been introduced to meet the wants of the time, and which had flourished bravely while those wants existed, disappeared from our columns when the purpose for which they had been planned was met. There was no department of THE LANCET in the early days, when its scope was decided upon, of which there was more reason to be legitimately proud than that entitled, "The Mirror of Hospital Practice." This department was the outcome of the intention, forming part of the first programme of the paper, to publish what went on inside the walls of hospitals, the underlying, and sometimes the avowed, idea being that it was necessary to let in light upon dark places. It follows that at first those who discharged the duty of attending the hospitals with a view to report hospital life, remained strictly incogniti, and especially was this necessary after the frankly libellous tone in which the first articles were written. Many of the early reports were furnished by members of the staffs of the various hospitals, and sometimes by the residents and assistants, who realised the need of radical reform, saw that it would follow upon plain speaking, but could not be expected to disobey the strict injunctions of their seniors openly. There is no doubt that the improved tone of the comments upon operative procedure reflected the reforms that were taking place, and as the notes upon operations assumed the shape of fair and often appreciative accounts the stringent ban against members of the staff of THE LANCET was lifted.

Fernandez Clark, who was brought to the office by Robert Liston, and who wrote some interesting autobiographical recollections of the medical profession, was connected with the paper from 1834 onwards for over 30 years. He was put in charge of "The Mirror," and his accounts of operations at the hospitals were frequently supervised by the surgeons concerned. The anonymity of his other collaborators and his more immediate successors has been so faithfully kept secret that to-day no one can recall their names. When in 1872 Tweedy became the editor of "The Mirror" circumstances had much altered. At all the hospitals the representative of THE LANCET was made welcome, save during that unlucky period, to which allusion has been already made, when a London consultant surgeon was made the subject of an unjustifiable attack. Our relations with the staffs of hospitals were then, for a time, made difficult, and only the tact and popularity of the editor of "The Mirror" re-established them again on a pleasant footing. We need only mention the last two surgeons who edited "The Mirror" to show how important a section of the paper it was considered. They were Sir John Tweedy and Mr. W. H. Battle, who resigned in favour of Mr. Willmott Evans just before that section of the paper was discontinued. Mr. Battle assisted us in this way for ten years, and

his pithy comments upon the questions arising from the reports he was making were very instructive. We may give as an example the notes upon the operative treatment of abdominal diseases at a time, be it remembered, when methods in common vogue were giving unsatisfactory results. Readers were encouraged to try new and generally bolder plans in cases, for example, of "acute abdomen" and intussusception, by having before them a summary of cases under other surgeons.

But it was Mr. Battle himself who pointed out that the purpose for which the department was founded had ceased to have its original significance. First there was no particular reason to send a representative of THE LANCET to the hospitals when the staffs of the hospitals were willing to communicate their interesting cases without an intermediary, and when all idea of detective work had vanished. Secondly, the enormous growth of operating had reduced to a perfectly ridiculous point the possibility of any representative of THE LANCET being present at the right hospital at the right moment to see the right operation. When "The Mirror of Hospital Practice" was started the large hospitals had a day set apart for operations, and save in cases of emergency the patient to be operated upon was prepared for the ordeal on that day. At a large metropolitan hospital the major operations for the whole week, excluding the emergencies, were often performed between two and half-past four on a particular afternoon. Then at the larger hospitals two afternoons were set aside for operating; and at last, in response to the enormous progress made in surgery, operations became a part of the ordinary procedure of the hospitals, and there was no possibility of any representative of THE LANCET being certain of seeing any really new departure. The editor of "The Mirror" was often informed by intending operators of a procedure they desired to take which appeared to be of a radically new nature, but even so it was usually preferred to leave the drawing up of the full report to the operator. Further, the general outlook of scientific surgery had so altered that a surgeon often no longer wished to record a single operation. His work he felt had been done in association with that of others and he preferred to allow it time for collation. The real meaning of modern surgery would have escaped comprehension in records of isolated events.

THE DOOM OF THE UNQUALIFIED ASSISTANT.

In 1893 there were a good many scandals in connexion with the improper use of unqualified assistants by medical men. The unqualified assistant was a survival of the old days of apprenticeship, when a medical man took under his care and very frequently into his house a commencing student, whom he instructed in the principles and details of practice, the time so spent counting in the lad's educational curriculum. The Medical Acts had done away with apprenticeship, and although return to it was advocated by many, no advantages could ever be claimed for it commensurate with its drawbacks. It was felt that it would be fatal to an educational system, now rationally arranged, to admit a scheme which left so much to chance. Setting aside the question of whether empirical training in therapeutics before the acquisition of a scientific ground-work can ever be valuable to the better students, apprenticeship left it to chance whether the tyro obtained any instruction worth having. He learned to dispense up to a point, he was present at a certain number of labours, he was taught to vaccinate, but not well taught, and perhaps became familiar with some form of book-keeping. Unless, however, his time was spent in a manner that constituted something of a public abuse—that is to say, unless he practised as a general practitioner, without a qualification and covered by a principal—his occupation could not have been of service to him after the medical schools had regularised their educational courses in conformity with the Medical Acts.

But in many cases he became his master's unqualified assistant, and by developing the duties of the surgery attendant into those of the general practitioner he grew to be an undeclared partner in the practice. He was paid by salary—low salary—and not as a partner, but the public had no doubt whatever of his status as a qualified man. The supply of apprentices dropped off as the medical curriculum was properly arranged, when their place was taken by unqualified assistants, who for the most part had given up the idea of obtaining a place on the Register, but who had in many cases done a full course of medical training. Their employment was frequent all over the country, and where supervised their services were of great value both to their employers and the public. But unfortunately grave abuses began to arise. Some doctors left all their club practice and much of their midwifery to such assistants, and the public did not obtain the quality of service which was being paid for. And in large cities multiple practices began to be run by these unqualified men. They were the employees of one registered practitioner, who covered their activities, and, perhaps to the prejudice of neighbouring colleagues, took their earnings. By 1897 the position had come so prominently before the General Medical Council that measures were taken to set the whole matter right. The Council resolved with practical unanimity to state clearly that the employment of an unqualified assistant, save in the form of a pupil, would be considered by the Council as "infamous conduct in a professional respect," to be punished by removal from the Register. The cases of abuse had many of them been reported in THE LANCET, where the action of the Council was anticipated, but the immediate result was very hard upon an unfortunate class, and we were found deploring the precipitancy of the reform while approving its object heartily. Undoubtedly a very large number of our supporters were seriously embarrassed by the necessity of dispensing with services which they valued highly, and which in many instances were wisely directed and controlled to the benefit of the public; they were disappointed that we were compelled to approve of a measure of reform which, as a matter of fact, was designed to

meet unprofessional situations which had been described in our columns.

Of the main decision of the Council we entirely approved. It was a complete anachronism that half or a third of the work of the medical profession should be done by persons not in the strict sense of the word medical practitioners. Such an arrangement was deceptive as regards the public who thought they were getting the advice of qualified persons, and grossly unjust towards young practitioners who should find their first and most valuable work in the field of private practice under the supervision of an intelligent and experienced principal. The General Medical Council did its duty by legislating for the suppression of all inferior and unqualified forms of practice, and those who had the interests of the medical profession at heart recognised this and applauded its action. May we add that our old friends returned.

THE BATTLE OF THE CLUBS.

Exactly when the conditions of contract practice began to be felt by medical practitioners as thoroughly unjust and to be recognised by the more intelligent of the public as inefficient it would be hard to say. The old-fashioned club practice did not break down at any particular date in any universal way. On the contrary, in communities which it suited and in hands where contract practice was sympathetically and intelligently treated, there were circumstances about it which gave it considerable appeal both to the practitioners and to the patients. But this was mainly in rural districts where the mass of patients affected was much smaller, and where close relations between the doctor and his charges were better preserved. In the larger towns, and in connexion with workshops, where masses of operatives were aggregated, the rules and customs under which doctors were accepting capitation fees for medical attendance were often thoroughly oppressive.

If there is one date more than another when a general movement against contract practice came to a head, it occurred in December, 1895, when the medical men of Cork took the decisive step of forming a benefit club to be managed entirely by themselves. The issues at Cork were exceedingly simple. Large tradesmen, well-salaried clerks, and bank managers had joined medical clubs, and were demanding to be treated upon the same terms as the artisans and the labourers, and in some cases it was attempted to make small yearly fees cover attendance, in addition, upon every member of the subscriber's family. The medical officers of the clubs protested, found their protests unavailing, and resigned. The clubs retaliated by importing new medical officers into Cork. The medical profession of Cork rallied round the dismissed officers, and the students proceeded to infuse liveliness. The medical men concerned met delegates from the clubs at a conference at which free acknowledgment was made that the medical profession had substantial grievances, and the hospitals of the city were drawn into the battle. While this dispute was receiving considerable attention in the lay papers, the letter-bag of THE LANCET was swelled with stories of similar treatment meted out to the profession at other centres, and we decided to make an immediate inquiry into the position of the medical profession in regard to the numerous societies which in certain districts were providing medical aid for the sick poor.

These societies were increasing in number, and the hardship to the general practitioner was growing in proportion. Mr. Adolphe Smith was commissioned by THE LANCET to make an inquiry on the spot at a wide variety of representative centres. Large cities and small manufacturing and agricultural centres, a fashionable health-resort, a populous port, and a cathedral city were selected as forming types from which information should be collected for purposes of sifting and comparison.

It was soon seen that different orders of clubs or associations had to be dealt with. There were societies having as their primary objects schemes for life assurance only, adding to them a project for medical aid as an inducement to the public to enter their fold. Others were constituted with the simple intent to secure for the public medical attendance at low rates, which was an excellent programme if it could be carried through without oppression of those who rendered the attendance, but their object was already largely met by the sick-clubs managed with great capacity and thoroughness by many practitioners. Some of the societies were well organised, in that an effective attempt was made to ensure that only the truly necessitous were the recipients of medical charity. Others were uncommonly ill-managed, in that all persons, no matter what their condition of health might be, or their means, were invited to enrol themselves that they might be treated medically for a penny or two a week, drugs included. The profits made by these companies, though earned by medical work, never, or hardly ever, found their way either to medical men or medical institutions. In certain of the institutions, the management of the association having been and remaining entirely in lay hands, the interests of the medical officers suffered severely. They were badly treated by the persons to whom they dispensed charity, their emolument was small, their work was hard, and the patients who could reasonably have been expected to pay them as private clients were systematically exploiting their services.

Mr. Smith's reports were published in THE LANCET week by week, when the conclusions which were come to proved clearly that the whole system of contract practice as existing in the country at that time was riddled with abuses. Sporadic improvement undoubtedly followed the publication of Mr. Smith's articles. It was seen from their general tenour that the lofty view taken by certain members of the medical profession that it was disgraceful to be the medical officer to a medical aid association was not endorsed, while the principal recommendation was that medical men in each neighbourhood where the club system was replacing the practitioner's private sick-clubs should meet and arrange upon a common course, when the situation could be considered from every side. In fact, the conclusions come to had much in common with

the arguments lying behind the interim report (Dawson Report) of the Medical Advisory Committee to the Ministry of Health, though the principle of national insurance was not thought of as a practical means for unifying the interests of the medical profession and the public. The articles were issued as a pamphlet, entitled "The Battle of the Clubs," and when Mr. Lloyd George, as Chancellor of the Exchequer, introduced a measure for national insurance into the House the facts put forward in them were much quoted by his supporters and his critics, and more than occasionally the conclusions were perverted by both while feeling was running high.

SOME GENERALITIES.

Perusal of THE LANCET during the 20 years which preceded the war, that is to say during the first two-thirds of the period under notice, demonstrates the many directions in which the conditions of life had altered and were altering all over the world. The war is generally spoken of as having introduced a new order of things, bringing as its sequel interrelations of peoples, mental states, conditions and prices, which rendered former theories of sociology false or unworkable. On the analogy of medicine it may be surmised that many of the changes under which we are now living had begun before the murder at Sarajevo, and that the effect of the war was sometimes to confirm, and sometimes to modify, a train of events which had already started.

During the 20 years in question there were held International Congresses of Medicine as a whole, British and International Congresses on Tuberculosis, Congresses of Surgery and Hygiene, and at these there were discussed many of the problems which now assail us. Endocrinology became an important subject in therapeutics, and at this moment opinion is divided upon points which presented themselves 15 years ago. The passing of a Vaccination Act in 1898 permitting persons to contract out of a safeguard in public health was a set-back to scientific medicine in our opinion, and to-day the same arguments are being used in support of, or in opposition to, a conscience clause. But there is far more evidence upon which to discuss these things, and absence of the old dogmatism which denounced as quackery or heresy anything done by those of dissentient opinions.

Great changes were effected in the conditions of service for military medical officers, and the naval medical service was much improved, but in neither case have painstaking attempts to meet the requirements of candidates succeeded in their main object. It is clear that here a situation which seems to have been considered over and over again from every point of view still awaits reform. The South African war taught us many lessons of military hygiene, and the extent to which civilian medical men were drawn upon proved that if we were involved in a greater and grimmer struggle the Royal Army Medical Corps, as constituted in 1898, would form but a handful among the doctors required. The Territorial system took note of the position. The South African war gave an opportunity, which was not fully taken, to demonstrate the extreme value of Sir Almroth Wright's researches. Anti-typhoid inoculation forms a grand chapter in pathology which can be read fully in THE LANCET, and the adoption of the process by the army in 1906 was a prelude to the saving eight years later of untold lives.

Our knowledge of syphilis was incalculably advanced by Schaudinn's discovery in 1906, which was followed by the Wassermann test, and Ehrlich's introduction of arsenic preparations in treatment. With a definite causation and a new line of therapeutics organised control of the disease started, and immediately it was seen that certain procedures, deemed by many medical men and a large public as essential to success, would be condemned by others, medical and lay, as contrary to public morals, and possibly not as valuable as they appeared. The disease-rate was affected recently by the world-war, but the measures taken for control are proving efficacious to some extent, and differences of opinion are being laid aside.

The ravages of venereal disease shared with those of tuberculosis and cancer the dismal honour of being more written about in our columns during this period than any other subjects, and in the matter of tuberculosis, as in that of syphilis, the measures for mass treatment had started before the war. The King Edward VII. Sanatorium was founded in 1903, at the time when a controversy was raging as to the relation between bovine and human tuberculosis. Many of the questions which were then discussed are still unsettled, but perhaps more than any one thing the incidence of tuberculosis, so dependent upon such varying social circumstances, made clear to the public that the strong advocacy of the institution of a Ministry of Health was necessary. The question came to the fore under many guises, when legislation in respect of housing, of the notification of disease and its institutional treatment, of the tenure of sanitary appointments, and of the safeguarding of children—to take a few obvious examples—were under discussion, and the Ministry arrived in 1919 (see p. 763).

The subjects thus cursorily set down indicate that during the 20 years before the war the writers in THE LANCET were dealing largely with things which to-day are as topical as they were then. The war has altered the proportion of their interest, perhaps, and has made measures, that were not then considered, either easier or harder to introduce. But of one thing there can be no doubt. The public has become far more alive to the perils of unqualified practice. During the 20 years we have passed under notice these were particularly widespread, and the revelations in THE LANCET of some of these, notably of abortifacients, were of real public service.

AN UNPLEASANT EXPERIENCE.

At the beginning of the year 1908 THE LANCET had the unpleasant experience of unsuccessfully

defending an action for libel. It was an expensive experience, for the case lasted several days and eminent counsel were engaged on each side. The action arose out of some comments which were made by THE LANCET upon the words of a coroner, who stigmatised a certain kind of dealing as a fraud. The inquest was reported in a well-known London paper, and the circumstances were made the subject by us of a general denunciation of quackery. The jury, with the hearty approval of the bench, took 20 minutes to agree that our article did not constitute fair criticism, but was an attack on the plaintiff's character. For the information of our readers, and in proof of our perfect good faith, we published the proceedings at full length in our issue of Feb. 1st, 1908. The case is worth reading. Our legal position in appealing against the verdict would have been one of considerable legal complexity, and in the end it was decided not to do so. Therefore, to complain of the issue would have been childish then, as now, but the Editor did not understand by submission to a verdict which surprised him and our readers much, that attention could not be drawn to our position, that is to the necessity that a journal having the objects of THE LANCET, and receiving the support which it did from the medical profession, should take the attitude that was taken, whatever errors in detail might have been committed. It was clear that medical practice of the kind which was fully admitted to have occurred, by whatever word it was designated, must be condemned by the medical profession, and therefore by a journal taking up the position of speaking for that profession. If the situation arose again, warned by experience, we should employ expressions not so easily open to challenge. We had many urgent recommendations to appeal against the verdict, and our legal advisers were not adverse to such a course, while many members of the medical profession suggested the institution of a subscription as a guarantee against further expenses. The Editor was perfectly clear that, if we proceeded to appeal, he would be at the necessary expense himself, but in the end it was decided not to appeal. For the paragraph as written contained an indefensible inaccuracy, and this, in the case of a new trial, would have remained as an embarrassment in discussing the really important features of the case.

This was the first libel action which THE LANCET had lost for a very long period, and, as plain speaking had offered many opportunities for legal rejoinder, the fact should be recorded that, for nearly 90 years, our interests were watched over by the same firm of lawyers. Henry Sandford, who died in 1919, aged 86, was the senior partner of the firm now styled Potter, Sandford and Kilvington. This firm had charge of all the serious legal embroilments which characterised the first ten years of the life of the paper, and at that time included a cousin of the first Thomas Wakley.

THE PRINTING DEPARTMENT.

The old associations have been similarly preserved in the printing department of the paper. At the earliest stage a printer's boy, James Lionel Kerslake, in the firm of Savill and Edwards, used to hold a candle at the tall desk where the Editor was correcting proofs, at a period when gas had not been introduced. He entered the employment of THE LANCET when the paper was set up—as it was for three-quarters of its life—on our own premises; his son-in-law, Mr. William G. Martin, became our head printer; and after 25 years' service in that capacity was succeeded, in 1915, by Mr. Frederick W. Martin, his son, and our present head printer.

THE THIRD THOMAS WAKLEY.

On March 5th, 1909, almost exactly two years after the second Thomas Wakley had died at the advanced age of 86, the son followed the father to the grave in his fifty-eighth year. The third Thomas Wakley was born on July 10th, 1851, and was an only son. He was educated at Westminster and at Trinity College, Cambridge, and at school distinguished himself alike in work and games. He obtained a leaving exhibition, when his father did a graceful action that might well be followed by other parents possessing the means in similar circumstances, for, while desiring his son to keep the prestige which he had won, he forwarded to the boy coming next in the competition a cheque of the value of the leaving exhibition which he just failed to attain. It was no secret to those who knew "Young Tom," as everyone called him to distinguish him from his father, that his resolution to enter the medical profession and follow the footsteps of his forbears was not dictated by choice, and while at Cambridge, and after passing the first M.B., he definitely relinquished the idea. The association with the paper, however, proved too strong for him, and when he was 30 years of age he entered as a medical student at St. Thomas's Hospital and qualified as L.R.C.P. Lond., which in 1883 was definitely a double qualification, though he did not proceed with the medical curriculum at Cambridge. The reason for his late entry as a student was a serious illness following a bicycle accident. For some days his life was in danger as the result of a slight fracture at the base of the skull, and when slowly restoration to health was established it was found that the sight in his right eye was permanently damaged. Immediately after qualification he entered the office of THE LANCET and began the life of a journalist under the tutorship of his uncle and under the eye of that informal sort of editorial committee, already described, which aided James Wakley in the conduct of THE LANCET and took over his responsibilities during his last illness. For three years he profited by such routine duties, and when in 1886 James Wakley died, Thomas Wakley and his father, who had become the proprietors of the paper, worked together in its conduct, as has been already narrated. They made a good combination because their conceptions of duty were so absolutely alike while their methods were at variance, the elder being always

young and impetuous, the younger being always deliberate.

One who worked daily with the younger Thomas Wakley for 16 years has written of him as follows :—

"He strove above all things to be fair, and nothing gave him greater pain than the inability to prove to the man whose views he could not take or whose letters he could not insert, that a sense of justice, arrived at by considering larger issues than had presented themselves to the mind of his correspondents, alone prevented publication. He was also tender-hearted, and many a little flout and jeer, legitimate enough, perhaps, but unnecessary, was removed by his editorial pen because he feared that pain incommensurate with the offence would be inflicted. Lastly, he was extraordinarily accurate, he could bring a good memory to bear upon minute details, with the result that no article passed through his hands without a severe test of its qualities. He wrote but little himself in THE LANCET, as he held that it was exceedingly difficult for a man who wrote not to take a side. The more absolutely unprejudiced a writer holds himself to be, according to Wakley's belief, the more probable is it that unconsciously he will lean to a favourite view or will suggest a policy for trial in particular issues that is in accord with the general character of his own disposition, but not necessarily in accord with the demands of the situation. Distrust of anything like enthusiasm, which is thus implied, was a marked quality in Thomas Wakley, but when he was convinced that the right cause demanded plain speaking, he welcomed that speaking and preferred it eloquent."

In the *British Medical Journal* the following appreciation would have given its subject great pleasure :—

"It would not be exactly our province to estimate Thomas Wakley's career as a journalist further than to say he worthily maintained the honourable traditions of the great journal whose fortunes he was called upon to direct. But there was one side of his work to which we desire emphatically to bear testimony. The fairness of mind for which he was so well known among his friends led him into relations with ourselves of a particularly pleasant sort. As a result both journals came to recognise that while keen rivalry was the best incentive to enterprise, such rivalry in no way precluded the existence of cordial good feeling between those responsible for the two journals. He was a man who by speech and manner inspired absolute confidence in his straightforwardness, and longer experience only proved that this was the root quality in his character. His word was his bond and he was constitutionally incapable of a mean action."

Outside his editorial work Wakley was a keen and enthusiastic Freemason and an able numismatist, and possessor of a valuable collection of coins.

THE CLOSE OF THE CENTENNIUM.

WHILE this issue of THE LANCET was passing through the hands of the printers one compositor inquired from another, "How big is this Centenary Number going to be?" and received the advice that he should "look how big it was last time." We see no reason why 100 years hence the advice should not be followed, for in reaching the last stage of a history of 100 years of effort we find evidence of a vitality we wish not to talk about, but which we hope is clear to others.

THE CHANGE OF OWNERSHIP

The third Thomas Wakley married late in life, and his only son was but an infant when he died. No male Wakley had a share in the property or was either a medical man or a journalist, and the paper passed into the hands of a private company. Dr. Squire Sprigge was appointed Editor in succession to his late chief. Dr. H. P. Cholmeley continued as assistant editor, and S. A. Vasey was in charge of the chemical investigations. Mr. Charles Good remained as general manager. Dr. Cholmeley retired in ill-health, from which he has happily recovered, and his place was taken for a period by Dr. N. G. Horner. Dr. Cholmeley, the author of "The Life of John of Gaddesden," had been on the staff of the paper for 13 years, and his retirement was deeply regretted. His wide knowledge ran along unexpected paths, and his impatience of ignorance was veiled in his editorial articles by the facile employment of classical analogies. No one was ever by temperament less adapted for journalism than Cholmeley, but he worked in a routine that never was congenial with an air of amusement at himself and everyone else, and the occasional articles which to-day appear from his pen have all their old charm. Dr. E. C. Morland became assistant editor in 1915.

The present Editor is Sir Squire Sprigge; the chairman of the Company owning THE LANCET is Sir Ernest Hodder-Williams, and the general manager is Mr. R. E. Sare. We will not detail the names of the staff. In the earlier narrative the identity of collaborators formed part of the history—indeed, their personalities have largely made up the history. At a middle place the names of the staff were given as the readiest way of showing that while the developments in science were of a certain scope, we had friends who could meet our needs in each direction. And at this closing place we render in the warmest way thanks for the general and generous manner in which workers on all scientific and administrative lines place their wisdom, for the most part anonymously, at the disposal of our readers. Without such aid, given week by week, it would be impossible to record progress. They had, as has been shown, much ground to cover. Nor is it necessary to call attention to individual communications. The original articles at this point form an integral part of modern medicine, whose story we and many contemporaries, with general or special purview, are trying to tell, and the writings can be consulted easily, the messages being in many instances familiar.

The impossibility of summarising the scientific contents of the paper was recognised in speaking of those contents as they presented themselves 30 years ago, and the impossibility remains. This chapter of medical history must confine itself to two things, as they are reflected in our pages—namely, the evolution of the profession, and the part played by the profession in public events and the war, with certain points in the domestic life of the paper.

THE NATIONAL INSURANCE ACT.

The year 1911 was memorable for the most important measure of social legislation ever attempted in this country. On May 4th there was introduced in the House of Commons a Bill to provide for Insurance against Loss of Health and for the Prevention and Cure of Disease, containing 115 clauses and 9 schedules, and having emerged in this form complete and perfect from the fertile brain of the then Chancellor of the Exchequer. Its general principles meeting with wide approval, the second reading was agreed on without a division on May 29th, and on Dec. 16th the National Insurance Bill received the Royal Assent and became an Act. During this brief period of eight months no systematic review was possible of a measure at once so complex and unprecedented, the House of Lords remaining content with mere improvement in drafting, while the medical profession was rent by conflicting interests and quite unable to secure effective consideration of the grave principles involved. Time after time THE LANCET insisted upon the grave danger of forcing through without adequate discussion a scheme which proposed to improve the public health by a vast extension of club practice. The British Medical Association took in hand the task of formulating the minimum demands which must be conceded by the Government before the medical profession could cordially coöperate in working the scheme, and a mass meeting of the medical profession, held at the Connaught Rooms on June 1st, set out the six cardinal points around which all further discussion centred. These points were in brief:

1. An income limit of £2 a week for those entitled to medical benefit.
2. Free choice of doctor by the patient, subject only to the consent of the doctor to attend him.
3. Medical and maternity benefits to be administered by Local Health Committees and not by friendly societies.
4. The method of remuneration of medical practitioners adopted by each Local Health Committee to be according to the preference of the majority of the medical profession in the district.
5. Medical remuneration to be what the profession considers adequate, having due regard to the duties to be performed and other conditions of service.
6. Adequate medical representation among the Insurance Commissioners, in the Central Advisory Committee, and in the Local Health Committees, and statutory recognition of a Local Medical Committee representative of the profession in the district of each health committee.

The turning point in the negotiations was undoubtedly reached when, at the invitation of Dr. Addison, Mr. Lloyd George attended a session of the Representative Body of the British Medical Association and declared his conviction that the whole-hearted support of the medical profession was the first condition of the success of the Bill. He then spoke in favour of the principle of free choice of medical man, the vested interests of existing club doctors being respected, and of the appointment of a medical man as one of the Insurance Commissioners; he expressed his personal preference in favour of the freedom of medical men from the control of the friendly societies, provided that the medical profession succeeded in persuading the House of Commons to vest all the charges for medical benefit in the Local Health Committees. Mr. George pointed out that the rate of payment was elastic, as the Bill did not dictate the conditions, and he concurred that payment for work done might be tried as an experiment throughout the district of any Local Health Committee which agreed upon it with the local medical profession. While he held out no hope with regard to an income limit for wage-earners, Mr. George was willing to support the exclusion of voluntary contributors above the income-tax limit, and with a few graceful parting words he acknowledged a reception which had been thoroughly cordial.

During the autumn the stand of the medical profession was transferred to some extent from the cardinal points to a more general demand for just treatment, while the actuality of the Government's willingness to have influential medical opinion represented on the Insurance Commission was more than proved by the dramatic appointment, as deputy-chairman of the Commissioners, of the medical secretary of the British Medical Association. Although THE LANCET felt the danger that by the Act it was proposed to buy the profession of medicine outright at the lowest possible price, nevertheless, it was pointed out in our columns by a careful critic that the prices asked for practices in our advertisement columns were steadily rising, whereas the effects of the Insurance Bill should have caused a rapid fall of value, especially in cash practices. The end of the year was marked by the enthusiastic protest meeting at Manchester at which it was decided that to meet the situation members of the profession should refuse to form a panel under the Bill or to take any duties which the Bill proposed to assign to them, and at this point a National Medical Union was formed to strengthen the hands of the British Medical Association in safeguarding medical interests. At the final passage of the Bill in the House of Lords, Lord Haldane, who had charge of it, frankly expressed his assurance that there would be no difficulty in getting doctors to do the work, inasmuch as it was often extremely tedious for young medical men to secure a start in their profession and to get their names placed upon the panel would give them an opportunity which they did not at present possess. Lord Midleton, however, voiced the widely-felt fear that the general extension of contract practice would make intolerable demands on the medical profession.

The question of remuneration remained in abeyance, and only just before the Act came into force on July 15th, 1912, appeared Sir William Plender's much delayed report on medical remuneration in certain selected areas, from which it appeared that the average annual gross income derived from patients attended under contract amounted only to 4*s*. 2*d*. per head of the population, and this report naturally did not help the British Medical

Association on the eve of its meeting at Liverpool, for the findings of the report were misunderstood and unfairly used by the political press. The Liverpool meeting continued to adhere to demands which the Government stated could not be conceded, and alternative plans were developed for a capable public medical service acceptable to medical men and beneficial to the public who, as THE LANCET reiterated, must not feel that they had been left in the lurch by the medical profession. These plans never materialised. Without admission of reconciliation either to the principles or to the working of the Act, active opposition to it gradually diminished, the Commissioners taking up an attitude of sweet reasonableness which proved disarming. The Special Commissioner of THE LANCET, who visited different centres during 1913 and 1914, found little hostility to the principles of the Act, although its administration was open to criticism in many respects. He was impressed with the enormous good which the fight had done in bringing together the members of the medical profession as never before. The great majority of practitioners were satisfied with the financial result and resentment was dying away. This was the situation on which the war intervened, and the story cannot be taken further with any advantage inasmuch as the position may be altered in the future.

INQUIRIES INTO PUBLIC MATTERS.

Of the last Commission instituted by James Wakley (see p. 723), who was strict in using this title for the inquiries which he set on foot, two of the most important were undertaken by Mr. Adolphe Smith, whose reports on a large range of subjects and over many parts of the world have formed for many years instructive reading to the medical profession and also to a much wider public, while reforms have followed frequently on the indicated lines, his help and that of THE LANCET being acknowledged. It is desired here to record briefly some of the work which he has undertaken for us. His report on the spread of disease through laundries revealed a common danger, and the detection that table napkins from a St. James's-street club were being dried in a Peckham garret over the bed of a small-pox patient was a telling episode in his account. The report on the contamination of uniforms led to investigations being made at the Army Clothing Depôt, questions in the House of Commons, and immediate disappearance of a scandal. Mr. Smith made personal visits to cholera centres in Europe at different times, it being necessary that our population should know that this country was not without its risks and that forearming was only prudent. From 1892 to 1894 he followed the cholera from town to town, throughout Europe from Calais to Constantinople. At the same time the few cases of cholera which occurred in England were not neglected, and we published the results of special inquiries at Hull and Grimsby. A curious anomaly in our local government was then discovered, for while the State incurred all necessary expenses to obtain information about the rare English cases, not a penny could be spent to investigate the widespread epidemics prevailing on the other side of the channel and only a few miles away. Therefore our Commissioner dealt in detail with the cholera in Paris, Brussels, Antwerp, produced spotted maps of the ports in most constant communication with England such as Calais, Boulogne, Dunkirk and, above all, Havre, where the epidemic was second in severity to Hamburg. But the most interesting cholera map was that of Hamburg itself. Not only was the case-rate and death-rate given for every district, but the nature of the subsoil and the average income of the inhabitants were given. The articles showed the progress of epidemiology since cholera was dealt with in detail some 60 years before (see p. 709).

Mr. Smith visited at different times Continental centres, and many American cities, reporting on their sanitary management, or on the particular epidemic crises which had brought him on the scene. Two investigations on the spot into the condition at the Chicago stockyards were made by him, the first in 1895 and the second, and more favourable, four years later. The revelations caused a *furore*, they were copied into the European press, and were made still more public by a novel, "The Jungle," in the writing of which the author, Mr. Upton Sinclair, acknowledged his obligations to our Commissioner. As a sequel Mr. Smith made a tour of famous abattoirs and dealt with the slaughter-house conditions at the different centres.

Two other out of many investigations initiated by the paper and carried out by Mr. Smith should be mentioned. The first concerned tailors in the East End of London and led to the nomination of a special commission of inquiry by the House of Lords. The original scope of inquiry had been confined to the circumstances surrounding a colony of Polish Jews, but the commission of the House of Lords extended the investigation, and Mr. Smith visited 150 sweating-dens in the provinces, the result being the publication of five large blue books and the institution of many changes for the better. A second valuable piece of work had its outcome in a series of articles on the free feeding of school-children in different countries. The information was particularly needed by school managers in this country, who were sorely perplexed by inability to meet the case of the half-starved scholar, and the articles were employed as evidence in the House of Commons during the debates which culminated in the measure for the Provision of Meals.

Following on the series of articles published under the heading of "The Battle of the Clubs" (see p. 755) came a set of inquiries into medical organisation, in the course of which Mr. Smith went thoroughly into all sides of contract practice at home and abroad, and was able to make suggestions which have since borne fruit. His articles, based on personal and local investigations, with the common heading of "The Organisation of the Medical Profession," were spread over the critical years, and in them he showed how well organised for mutual defence the medical profession

was in Germany, France, and Belgium. At an international congress on Medical Deontology, held in Paris in 1900, all this work was discussed and full publicity given in our columns to the debates, while the Society of the International Medical Press was started.

THE WAR.

A group of medical men had a curious indication, in the fateful week preceding the outburst of hostilities, that those who continued to say that such a war as was threatened was unthinkable, and that some way would still be found to avoid it, were too optimistic. The Congress of American Surgeons was being held in London at the close of July, and from its deliberations there suddenly faded away some well-known German visitors.

With the outburst of hostilities we suffered the dislocation of business that was common to the country, and with the prolongation of the struggle we were put to the same shifts. No purpose would be served by dwelling on the various awkward positions brought about by loss of staff, shortage of paper, rise of prices, and restriction of publication, but concerning the last it should be said that nothing but a favourable memory remains in respect of the treatment that we received. We were able to keep our readers posted in all matters where the dissemination of the information was likely to be valuable to the medical profession, military or lay—and it will be remembered that more than half the civilian profession was required to serve in one capacity or another. The call by the forces on the ranks of medicine became so insistent that the needs of the population had to be kept before men's minds, and the contents of the paper, apart from the medical and surgical contributions and communiqués, were much occupied with all the questions arising out of the attempt to reconcile the two claims. The war also gave impetus to the full permeation of the ranks of medicine by medical women. The surgical unit at Endell-street removed official doubt that women could administer as well as operate, and paved the way for full representation of women in public capacities. The development of the movement which has resulted in their wide recognition can be read in our columns throughout a series of years, but in its earlier stages those responsible for the conduct of the paper were clearly much divided in opinion. It is long since any such division has existed, and to-day one of our most valuable and trusted lieutenants is a woman, and our staff is regularly recruited from qualified women.

The Medical History of the War, which is on its way to completion, makes any attempt to summarise the contributions to these columns quite unnecessary, and the time is too near at hand to hazard an estimate of their permanent value trustworthy. We published what we thought to be of the greatest use to our readers, and say no more of that side of our work save to draw attention to the prominent way in which the subject of nutrition came in for notice at the time, to establish itself since as a field for research of supreme importance.

EXPERIMENTS IN NUTRITION.

Many circumstances combined to make the medical lessons of the War less substantial than was to be expected from the amount of skilled medical and surgical experience at the disposal of the nation. Only the science of nutrition blossomed as never before. The test-tube and calorimeter in the hands of the research worker were transmuted into world-wide experiments in national nutrition in which applied physiology had effective share. The publication in our columns early in 1915 of the Eltzbacher report on the Food Supply of the German People opened many eyes which had hitherto been blind to the possibility of rationing at home. "We can come through," said this report, "and the plan to starve us will founder on the voluntary coöperation of millions." The coöperation included a census of food animals and a restraint of the "senseless luxury" of eating bread and butter between meals. It was not much later that the U boats and Lord Devonport produced a similar concentration on food problems among thinking people in this country, and Sir W. Henry Thompson surveyed the food-supply of Great Britain and deduced the available daily ration. It was in THE LANCET that Dr. Harry Campbell's articles on Food Economics saw the light, in which he showed with much spirit that the purchase of a picture or a Pekinese pup was not national extravagance in the same way as feeding pigs on whole-milk. It was in THE LANCET, too, that an inquiry appeared into the unrestricted diet of a brain worker, the diet being no less than that of the chairman of the Royal Societies Committtee, whose appetite had evoked a playful reproach from Sir William Osler. Dr. Waller's justification was complete, for his daily average worked out at barely 2250 calories, the lowness of which surprised both himself and other physiologists. Indications of the many directions in which the effects of restriction showed themselves appeared in our columns: the disappearance of migraine, a reduction in the frequency of diabetes and of eclampsia on the credit side; an increase of tuberculosis, most startling in institutions, of rickets, of listlessness and inertia on the debit side; contrasted with the admirable health of the men living in trenches under conditions of cold, wet, strain, and anxiety, but fed like fighting cocks, the significance of food accessories gradually became apparent; the skins of potatoes and the juice of swedes came into great repute, and the straitened circumstances in Central Europe, which continued after the War, gave opportunity for the application of the new knowledge to the relief of deficiency diseases in Vienna and elsewhere. The inadequacy of our present knowledge of many important aspects of nutrition moved Prof. E. H. Starling, as scientific adviser to the Ministry of Food, when this Ministry came to an end, to plead for the creation of a permanent Board of Human and Animal Nutrition, for which he found THE LANCET a ready supporter. Such

a Board has now materialised, namely, the Food Investigation Board of the Department of Scientific and Industrial Research. The scope is indicated by a recent report on the Bacteriology of Condensed Milk, which was published in THE LANCET while these pages were being passed for press.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

With the first inrush of refugees from invaded Belgium we got at this office a view of the terrible position in which doctors and pharmacists in that country were involved. Not only were their practices hopelessly disintegrated, but their premises were invaded and their stores commandeered, while here and there terrible tragedies were reported, the occurrence of which in some cases was later proved to be absolutely true. The Editor of THE LANCET convened a meeting of doctors to organise relief for the Belgian doctors and pharmacists, both those remaining in Belgium and those who had become refugees in this country. A representative gathering assembled in the offices of the British Medical Association, and a General Committee was immediately formed, including the President of the General Medical Council, the Presidents or representatives of the Royal Corporations, and of the medical faculties of the universities. Officers of the British Medical Association, of the Pharmaceutical Societies, and of the National Insurance Commission immediately joined, and from the beginning the British Medical Association gave every assistance to the movement through its large organisation. Sir Rickman Godlee became chairman of an Executive Committee which included the following :—

Sir Thomas Barlow, President of the Royal College of Physicians of London; Sir W. Watson Cheyne, President of the Royal College of Surgeons of England; the late Mr. Meredith Townsend, Master of the Society of Apothecaries; the late Sir Alfred Pearce Gould, Acting Vice-Chancellor of the University of London; Sir Frederick Taylor, President of the Royal Society of Medicine; Dr. Herbert Spencer, Obstetric Physician to University College Hospital, London; the late Sir Frederic Eve, Consulting Surgeon to the London Hospital; Sir Jenner Verrall, then Chairman of Representative Meetings of the British Medical Association; the late Dr. F. M. Sandwith, Gresham Professor of Medicine; Mr. E. T. Neathercoat, President of the Pharmaceutical Society of Great Britain; Dr. Alfred Cox, Medical Secretary of the British Medical Association; Sir Dawson Williams, Editor of the *British Medical Journal*; Mr. W. J. Uglow Woolcock, Secretary and Registrar of the Pharmaceutical Society. Dr. H. A. Des Vœux was appointed Honorary Treasurer, and the Editor of THE LANCET Honorary Secretary.

The work before the Committee was obviously twofold. It was necessary to provide assistance for the members of the medical and pharmaceutical professions and their families who were refugees among us—and this was in many instances a matter of real urgency—while with regard to the victims of the German occupation, it was at first impossible to do more than despatch certain packets of medical material with which the misery created by the wholesale destruction of laboratories and pharmacies might be to some extent relieved. A start was made in this direction immediately, and packets were sent regularly to Belgium as soon as it was known that through the good offices of American and Spanish representatives the packets would be allowed to reach their destinations without interference. Along these two lines a comprehensive scheme was organised and an appeal was made to all medical men. Subscriptions were opened in Scotland and Ireland and a substantial sum of money was being received when late in 1914 Prof. C. Jacobs, of the University of Brussels, described in our columns and those of the *British Medical Journal* from personal knowledge the distress to which the allied professions had been reduced in Belgium. In the provinces of Brabant, Limburg, Liége, Namur, Hainault, and Luxemburg, our confrères were suffering terribly. At least a thousand medical men and three hundred pharmacists were known to be absolutely poverty-stricken, and others had been taken as hostages, their dependents remaining deprived of everything.

This deplorable message aroused widespread feeling, and the Executive Committee obtained early the invaluable sympathy of the American Ambassador in London. It became clear that it would be possible to transmit medical material to Belgian doctors and pharmacists upon some regular plan, and possibly to arrange for the sending of money. The first subscriptions were used as grants to relieve immediate distress in suitable cases, the responsibility for these grants being undertaken by the Editor and Dr. Des Vœux, the treasurer of the Fund. Every day for many weeks medical refugees belonging to one or other profession, or some member of their families, were interviewed by the Editor or Dr. Des Vœux, often by both. A list was made in which the positions were roughly categorised into those where assistance would clearly be required for a long period and those where, if the emergency could be met, the finding of employment was possible. Dr. Des Vœux organised a collection and distribution of clothes, and a large number of suits for men, dresses for women, overcoats and woollen and linen goods were received and distributed. At many times during the whole of 1915 the number actually dependent upon gratuities was large, but gradually the situation was relieved in different directions. The General Medical Council sanctioned the practice of qualified Belgian practitioners in England, when the registration fees were paid by the Fund, and an appreciable number of men were placed in a position to earn their livings. Others were enabled to join their own fighting forces on the Western Front, while some obtained employment through their own exertions and the ministration of friends. A number of pharmacists took advantage of classes arranged by the Pharmaceutical Society of Great Britain for the instruction in English methods of dispensing and reading and translation of English prescriptions. A gratuitous class was conducted daily by Prof. H. G. Greenish and Mr. H. S. Phillips, and the

instruction enabled the members to find employment.

By the beginning of 1916 we received the welcome information from Belgium that the Fund had been of real assistance to many Belgian doctors and pharmacists, a moving message expressing "the gratefulness of their little children." And at the beginning of 1916 the first cash account showed that over £18,000 had been received. By the middle of 1916 the Fund, through the agency of Mr. Herbert Hoover and the International Commission for Relief in Belgium, was able to get into close connexion with a society, the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés, sitting in Brussels, and from that time forward £200 was sent each week for a considerable period. The Belgian Committee was under the presidency of Dr. V. Péchère, with Dr. Laruelle, and Monsieur A. Delacre as secretaries, and Dr. H. Coppez as treasurer. The officers of the Belgian Association soon began to transmit to the British Fund *comptes rendus* of their proceedings, and it became obvious that the avowed object of the Fund would be largely achieved if money could be sent regularly to Belgium at the rate at which it was then being transmitted. During 1915, 1916, 1917, and 1918 accordingly money was sent in instalments to Brussels at the rate of at first £800 per month. Towards the end of this period the Fund began to run short of money. In July, 1918, a further appeal was organised, with the result that it was possible to maintain the subsidies until the end of the War, and to make a final distribution of £211 balance. Some generous help from America reached the Fund in the last critical stages. £25,790 were received, and £1143 were earned by investment of capital from time to time. £25,863 were given as relief, including a small sum as unreturned loans. Drugs and clothes cost £600 and printing £200. The postage was largely defrayed by THE LANCET.

At the close of 1919 Dr. Péchère paid a visit to this country in order that he might give to supporters of the Fund the thanks of those who had been helped.

THE FRENCH SUPPLEMENT TO THE LANCET.

Immediately after the war we issued a French Supplement which at monthly intervals appeared for four years. The supplements were intended to enable British doctors to understand the work of their French colleagues, and were sent to us under the editorial direction of Dr. Charles Achard, professor of pathology and therapeutics in the University of Paris, and Major Charles Flandin, D.S.O., Chef de Clinique à la Faculté de Paris. The supplements were shaped to include a general view of some big medical subject, and an original article dealing with a particular question. They had a good reception, and it is intended to continue them when mechanical difficulties in carrying out reciprocity are a little easier, for it was a particular pleasure to enter again into close communication with France, and show in a practical if limited way that medicine does not acknowledge racial boundaries.

THE MINISTRY OF HEALTH.

The Ministry of Health came into being on June 3rd, 1919, the arguments for its foundation having been told and retold till they can require no repetition. The Ministry was no new thing; in true British spirit it was a survival of what was best in many existing activities. Under the new Ministry medical work was coördinated with the work of other Departments, its activities being enlarged and redirected in object, and, in particular, arranged at one centre, thus obviating the waste, embarrassment, and disappointment associated with multifarious different and overlapping organisations. There were transferred to the Ministry the powers and duties in respect of public health of the Local Government Board and the Insurance Commissioners, and those of the Board of Education with respect to the health of expectant and nursing mothers, and children below school age. The medical inspection and treatment of children and young persons under the Education (Administrative Provisions) Act, 1907, as recently extended and amended, also fell under the scope of the Ministry, as well as the powers of the Privy Council under the Midwives Act, and those exercised by the Home Secretary under Part 1 of the Children Act, 1908.

How the Ministry has discharged its official work in respect of the general health of the people under these references, which, wide as they are, do not include its whole responsibilities, can to some extent be gauged by the regular publication in THE LANCET of the medical reports or abstracts of them, and of the various official communiqués. The medical work within the Ministry was at an early stage organised under six main headings, and reports have appeared in our columns dealing with the action of the Ministry in connexion with general health and epidemiology, maternity and child welfare, tuberculosis and venereal disease, food-supplies, sanitary administration, general practitioner services, and international health.

The full value of the scheme of medical treatment cannot be pursued unless the medical practitioner, instead of being an agent for the treatment of obvious disease, recognises and handles it in its early stages, and becomes also a missionary of personal hygiene in its preventive aspect. This is the view of Sir George Newman, the Chief Medical Officer of the Ministry; it has always found expression in our columns, and it underlies the Interim Report of the Consultative Council on Medical and Allied Services.

In many aspects and on many occasions the great question of the pecuniary support of the hospitals became a critical one under the development of the Ministry of Health and the National Insurance Acts, and it has been a source of satisfaction to find that the steady support of the voluntary system, which was so marked a feature of our youth, could be maintained not through any reluctance to a change of mind, but because the advantages of the system invariably out-weighed any to be derived from its abolition.

S. A. VASEY.

In conclusion we must record the loss that we experienced by the death of Mr. S. A. Vasey (Fig. 41).

Samuel Archibald Vasey, who succeeded Heaton (see p. 748) at THE LANCET Laboratory, died at the end of 1920, aged 58. For 28 years he had conducted inquiries of all sorts at THE LANCET, and little important work in chemistry or physics having a bearing upon health and happiness escaped his notice. The terms of reference in the laboratory were wide, and Vasey stretched them, as will be seen by a few instances of his catholic labour. In many text-books his findings have been recorded with approval, and into more than one Act of Parliament his recommendations have found their way practically unchanged. He was the author of a probing series of articles on abortifacient quackery, and the part author with Sims Woodhead of a useful report on the standardisation of disinfectants.

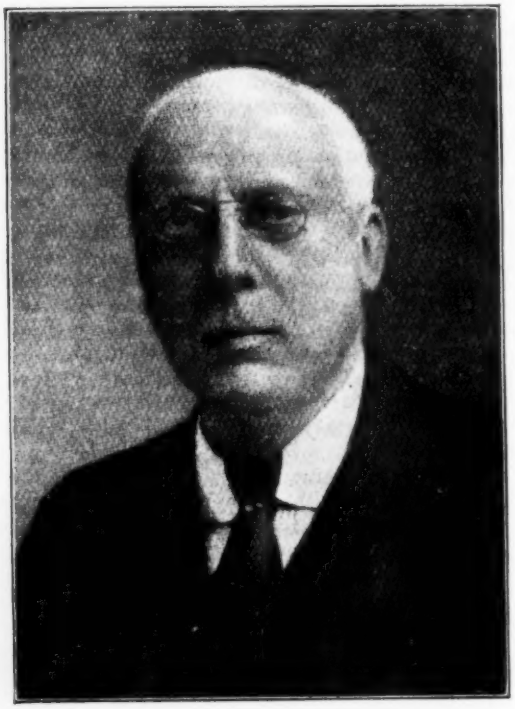


FIG. 41.—S. A. VASEY.

He made a thorough investigation into the physics of gas-lighting and into the whole subject of heating by means of gas, and in the course of the latter work he supplied manufacturers of gas stoves with much information which they required for the regulation of mechanism and the securing of economical results. He brought an intimate knowledge of air impurity, acquired in various researches, to bear upon the whole subject of coal-smoke abatement. He was the author of exhaustive inquiries into the two forms of alcohol sanctioned by the British Pharmacopœia, brandy, sherry, and into claret, the most frequent wine for ordinary drinking. He never exhausted his subjects with chemical résumés, and here he took full opportunity during his investigations at the vineyards to acquire information about soil, weather, and traditional routine, giving a broad character to the history of the three fluids. Others of his inquiries, conducted far afield, were those into the chemistry and natural history of continental waters, such as Apollinaris and Hunyadi János, and to the stock-breeding areas in the Argentine belonging to the Liebig Company.

The medical profession were further informed by his analyses on such various topics, small but of wide-ranging importance, as the nicotine contents of tobacco, with reference to pipe-, cigar-, and cigarette-smoking; the food value of oysters and the risks in their breeding and supply; and the danger which lay in the employment of certain flannelettes. His application of science to the things of daily life became a habit—part of his mental make-up. This was notably the case in regard to food, and constantly found expression in our columns. A luncheon to him was so many calories, with perhaps too low a protein factor and a deficiency in fat-soluble A. Atoms, ions, and sols in his mind kept familiar company with food, drink, clothes, and the raw materials of industry.

We have had good friends, and good friends have regularly taken their places, but Vasey, the man of science, who could bring his academic and practical learning to bear on the commonest problems of life in relation to medicine in its broadest sense, has been irreplaceable.

ENVOI.

We have left undone things which we ought to have done, and some things which we have done have not fulfilled their objects. But we have spared no pains to maintain the status of medicine and to assist in the progress of medical science by the diffusion of its hopes, its tenets, and its results. For the recognition of these efforts we thank our readers.

Introductory Addresses

PROBLEM OF SUCCESS FOR MEDICAL WOMEN.

Delivered at the London School of Medicine for Women on Oct. 1st, 1923,

BY SIR HUMPHRY ROLLESTON, K.C.B.,
PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

[Sir Humphry Rolleston began his address by referring to the rapid progress made by women in the medical profession since the London School of Medicine for Women was opened in 1874, and went on to examine the difficult question of the factors which make for professional success with women doctors:—]

Since the time of Darwin it has been recognised, though not without protest (Karl Pearson), that variability, both in body and mind, is more frequent in the male than in the female sex, so that genius, originality, and initiative, as well as idiocy and crime, are more frequent in men than in women, who tend to preserve a more equable level; men have a greater aptitude for abstract problems, women for concrete subjects. Now taking into account only the factor of the vastly greater number of men than of women in the medical profession, and remembering the relatively small percentage of men of outstanding ability that it has produced, it is surely not surprising that women doctors have so far not numbered among them any to rival Lister, R. Koch, Osler, and Horsley. Further, the number of women who give up the pursuit of medicine, before or after qualifying, is probably relatively much greater than in the case of men, mainly because marriage seriously depletes the ranks of women doctors; further, it is widely held, though statistical proof of this would be difficult, that it is the ablest who thus fall by the way. It has been stated (L. Martindale) that 30 per cent. of all women doctors marry either before or after qualification, and, though what proportion of these retire from active practice is not known, it commonly must act as a handicap to women, whereas it is of necessity a stimulus to male practitioners. But to return to the sex-incidence of genius—that extreme natural variation—there is, as just pointed out, the additional factor of greater uniformity among the female sex to reduce the probability of the occurrence of phenomenal ability among them.

Sex Differentiation.

Study of the world's history has convinced Mathilde and Mathias Vaerting, whose remarkable book "The Dominant Sex: A Study in the Sociology of Sex Differentiation," has recently been translated into English, that the relationships of the sexes as regards dominance vary in a manner resembling the swing of a pendulum; in a few instances women have had the upper hand, as in ancient Egypt, Sparta, the Garos in India, and the Iroquois; in the vast majority of nations, of course, men have been predominant, and very exceptionally the rights of the sexes have been nearly equal, as in the State of Wyoming; during the phase of male predominance there has been a conscious or unconscious tendency to obliterate the evidence of former feminine dominance, or, expressed more generally and at the same time more forcibly by the Vaertings, "history is perennially falsified by the prepotent ideology of the dominant sex." In nations under feminine dominance the woman supported the family and went out to work while the man was the housekeeper and domestic drudge; such division of labour is not ascribed to biological or physiological differences, but depends on the dominance of sex; in fact, the women of a nation in which the female sex is dominant become from the attendant circumstances physically fitter than the men. The notion that inborn physiological differences between men and women determine the usual superiority of the male is argued to be due to confusion between cause and effect.

The force of tradition and the suggestion that man is the dominant partner is not easy to estimate accurately in regard to medicine; auto-suggestion may well be of some importance; but that a woman doctor would consciously abstain from research and striking out a new line because it is commonly regarded as peculiarly a man's sphere seems improbable. Nevertheless the tradition of maternal ancestors (feminine heredity) and its social influence on the early life of a generation that has witnessed the wide opening of careers to women cannot be neutralised at once, and its effects may persist for some time. That women as a class are inherently more law-abiding, more subject to what they regard as conventional, and more conservative might reasonably be interpreted as the outcome of long-continued subordination to men's ascendancy. More than a hundred years ago Sydney Smith laughed at the idea that there was any inborn difference of intellectual capacity between men and women, and argued that the conditions of education were entirely responsible for the existing differences. Further, in the report of the Board of Education's Consultative Committee on the Differentiation of the Curricula for Boys and Girls respectively in Secondary Schools (1923) the opinion is expressed that there is little difference in intellectual capacity between the two sexes, though there are noticeable divergencies in emotional response as indicated by the degree of interest evinced for various studies, and that on the whole the apparent differences revealed up to the present by psychological inquiry would not seem to justify any serious differentiation in the actual curriculum.

Effects of Tradition and Heredity.

It is obviously important and equally difficult to apportion accurately the influence of environment, tradition, and suggestion on the one hand, and hereditary and inborn tendencies on the other hand. The circumstances of women doctors and students of medicine, though infinitely better than sixty years ago when the struggle for any opportunities at all was in progress, are even now not so good as those of men; for example, the hospital facilities and appointments open to them are still restricted as compared with those of men. On the other hand, it must be remembered that some of the best work done by men has been accomplished in the most unpromising surroundings; and it has been truly said "genius does what it must, talent what it can."

Though much less than in the past, the sexes still lead different lives; girls are more prone than boys to follow an indoor and confined routine, and so to impair or retard a robust physical development; and thus sexual peculiarities are accentuated. The physiological disabilities arising out of sex must be taken into very serious account as a weighty factor in determining women's chances of a successful struggle in intellectual work and practice of the profession of medicine. In 50 per cent. or more of women the monthly rhythm is a distinct handicap, and its manifestations are prone to be aggravated by a sedentary life and other factors prejudicial to a vigorous state of health, factors often inseparable from the life of a hard-worked doctor in town or institutional practice. For the greater part of their active life a large number of women are liable to recurrent interruptions in their state of efficiency, and are thus at a grave disadvantage as compared with their male competitors; among men migraine, which might be regarded as comparable in its periodicity and effects, is relatively so rare that it rather tends to emphasise the reality of the women's burden.

[Sir Humphry Rolleston concluded this section of his address by supporting the view that women have in a more developed degree than men the power of arriving at the correct solution of problems *per saltum*, and went on to estimate the ability of women medical students by their examinational distinction:—]

It may be interesting to compare the percentage of qualifications among men and women entering the medical profession. Sir James Paget's well-known analysis in 1869 showed that of 1000 medical students at St. Bartholomew's Hospital, 776, or 77·6 per cent., actually qualified; of Sir Squire Sprigge's smaller series of 250 students in the early 'eighties from St. George's Hospital, 187, or 75 per cent., qualified. Miss L. M. Brooks, your warden, has kindly analysed for me the results of 700 students entering the London School of Medicine for Women between October, 1894, and July, 1914; of this number 593, or 84·7 per cent., completed the qualification for which they entered; this proportion is much the same as that (about 85 per cent.) arrived at by the General Medical Council in 1907, and that (87 per cent.) of the students entering St. Thomas's Hospital in the years 1890–99 (Edred Corner). As far, therefore, as these few figures go, women students have held their own. It is satisfactory to learn that the death-rate during pupillage, which in Sir James Paget's series was 4 per cent., was halved in Sprigge's and Corner's series, and was little more than 1 per cent. (8 in 700) among the students of this school.

Possible Danger of Early Success.

Though a high place in the class list provides a good start and is prima facie ground for anticipating success in after life, it is, of course, no guarantee for women students any more than it is for men. Although many prize-winners continue to be front-rankers, early success is not without its possible danger; it may breed conceit and slacken effort, so that the highly placed may become extinguished by their distinction. An early failure is sometimes a blessing, however much it may be disguised. Another consolation for those who fail to find favour with examiners is that some students develop late, and so at first do not compete on equal terms with their more brilliant rivals, though eventually they surpass them in the race of life. To the make-up of a capable medical practitioner professional knowledge is not the only property necessary; practical efficiency, presence of mind, wise discretion, sympathy, and a thorough understanding of human nature are other essentials. Academic success may be obtained by mental ability, industry, and a temperamental power of making the best of knowledge thus acquired. Book knowledge may therefore go further in the examination test than in the daily round of practical life.

Women are, on the average, better students than their brethren; they work harder and take more pains, being whole-mindedly concentrated on the subject in hand. So much so indeed that many of them find it difficult to throw off their work for a time, and therefore tend to get stale and mentally dyspeptic. The power of detachment, by which mental concentration can be transferred from one thought-tight compartment to another, is of infinite value.

Relaxations.

The importance of cultivating a hobby, distraction, or avocation to balance and correct the more urgent claims of professional studies is a commonplace, yet like many dictates of common sense it is often ignored. Literature, music, art, and athletics are not only part of a liberal and humane education, but invaluable as a means of refreshment and of re-creating energy for the business of life. Just as there are burly athletes who never study, so are there pale students who go to the other extreme and thereby endanger their future by undermining both their mental and their physical efficiency. As a class women students are more prone than their brothers to over-devotion and thus to narrow their intellectual outlook and their chest development; to them, therefore, it is not so necessary to insist on the obvious need for industry, what Sir William Osler in his charming "Æquanimitas" called "the Master-word in Medicine," as to remind them that the best student combines mental and physical prowess, and thus realises the ideal of the *mens sana in corpore sano*. It has not uncommonly been urged in introductory addresses such as this that hard work alone seldom leads to a breakdown and that worry or some extraneous factor is the real cause; this is a rather over-stated, though no doubt admirably meant, exhortation, and is perhaps more applicable to those whose life's work is free from the menace of the examination bogey than to the students, especially women, whose mental vision is too often focused anxiously in that direction. It may be partially true when hard work can be secured from worry, but even then the interference with physical health must be taken into consideration. Much, therefore, turns on how the work is done, wisely or otherwise, and on the physical and mental make-up, so to speak, of the individual. Women students especially should remember that there are occasions when the willing spirit should be mindful of the weakness of the flesh, and that as a class they are more liable to mental breakdown from overwork. There are disadvantages in reading too much.

Rarity of True Genius.

[The lecturer, having reminded the audience of the differences between bookish learning and practical wisdom continued:—]

In the opinion of experienced teachers, such as Prof. W. D. Halliburton, while the average female student is on the whole superior to the average male student, possibly because the women who take up science are usually keener and feel a call to do so, the best women students are not so able as the best men students. This estimate indeed is on the same lines as the generally accepted view that true genius is even rarer in women than in men. Now whether this is due to inherent sex peculiarities or is the result of long-continued dominance of the male sex or to both these factors is an academic though interesting question.

It has been stated that each individual contains the potential elements of both sexes, one being of course dominant, though varying in individuals, probably in correspondence with the influence of the hormones from the endocrine glands, especially the gonads. According to Otto Weiniger and W. L. George, "there are no men, there are no women, but only sexual majorities." Although this view may not now be accepted and the endocrine glands are now considered to influence emotional rather than intellectual activities, there are most remarkable individual differences among members of the same sex, and everyone has known feminine men and virile women. As all kinds make a world, provision must be made for all, and it is among the masculine-minded women that variability tending to the production of genius or of special ability may be anticipated. Perhaps too much stress has been laid on the small number of women doctors who have made epoch-making advances and on the view (correct as it may be) that as a rule women students are less original in mind, less inclined to initiate new lines of thought, and are more successful as conscientious followers than as independent leaders in research. There have been exceptions in the past to any such rule, there are more in the present, and in the future there can be little doubt that women workers will take an increasingly larger part in research, whether independently or under the inspiration of a great teacher. The establishment at the Royal Free Hospital for a whole-time professor (Dr. Louise McIlroy) of obstetrics and gynæcology with a clinical unit is a notable step in advance and offers opportunities for realisation of this belief.

The Measures of Success.

But after all, success in our profession is not solely measured by ability for research and the discovery of the truth, any more than by the accident of popular approval that brings with it wealth and a prominent place in the limelight. There is the satisfaction of honest work quietly carried out with the knowledge that duty, hard and unremunerative

though it may be, has been done. The truest success in the art of healing does not, as it does in pure science, depend solely on intellectual pre-eminence; there are the properties of the heart as well as those of the brain, perhaps best expressed in the familiar text—

"Though I have the gift of prophecy (prognosis), and understand all mysteries (diagnosis), and all knowledge; and though I have all faith, so that I could remove mountains (confidence and operative skill), and have not charity, I am nothing" (I. Corinth., xiii., 2).

In the keen pursuit of scientific diagnosis, which is a purely intellectual process without room for the emotions or sympathy, there is a risk that the patient may be regarded and treated as a machine out of order, and thus the plight and feelings of a suffering fellow creature may be forgotten. A doctor should add to the abilities of an engineer and chemical expert of the human body some of the attributes of the broad-minded Churchman. Sympathy demands imagination, and both of these specially feminine properties should be preserved as valuable assets in our profession, and not transformed into callousness by contact with the naked and often repulsive aspects of a doctor's life. Imagination should supply an insight into the mind of the patient and an understanding of the fears and anxieties of those who come to be cured. Without this conception of the patient's point of view the student may think only of the diagnostic problem and forget the human aspects. The influence of cheerfulness and of reasonable optimism on the sick should be ever borne in mind; yet this may easily be forgotten in the presence of dour reserve even amounting to bad manners, really due to the patient's worries and self-consciousness. With a cheerful manner should be combined a degree of concentration sufficient to convince the patient that his condition is receiving serious attention; it is hardly necessary to carry this so far as to give the impression to every patient that he is the only person who counts in this world. Tact and self-oblivion, essentially feminine properties, are of great value in medical practice, and should therefore be preserved by medical women and not, as perhaps is sometimes the case, repressed or discarded by the more vigorously minded. As scope for the emotions and human interest are important factors in rendering work congenial to women, this would appear to be an additional reason why most women are more suited for practice than for pure laboratory research.

Though this address is headed "The Problem of Success for Medical Women," at this comparatively early stage of women's activity in the medical profession it is not wise, and indeed is hardly possible to say the last word on this subject. That medical women have succeeded in the face of great difficulties is shown by recent history, and now that circumstances have been so vastly improved by their efforts the road has been opened to their successors. The way, no doubt, is long and beset by difficulties; patience, perseverance, and wisdom are necessary, but there is encouraging evidence that by these means women may look forward to a just meed of success.

THE PROPER UTILISATION OF THE SENSES.

Delivered at the Opening of the Session of King's College Hospital Medical School on Oct. 3rd, 1923.

BY H. J. WARING, M.S. LOND., F.R.C.S. ENG.,

VICE-CHANCELLOR OF THE UNIVERSITY OF LONDON; VICE-PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

I INTEND to say a few words to you to-day on the way in which we, as students of medicine, form conclusions or come to decisions. I say purposely *as students* for all of us in one way or another are students of our great science and art, and it has occurred to me that it may be useful to you who are entering upon or are already entered upon your professional studies if I offer some remarks on the way in which, as it seems to me, we arrive at our conclusions in the practice of medicine and how we can best ensure that those conclusions shall be the correct ones.

Now, if our conclusions are to be sound, if they are to afford a satisfactory basis for action and treatment, it is obvious that they must in their turn be based upon accurate data. And so I must first of all lay stress upon the importance, the supreme importance, of the *proper*, that is the *intelligent*, use of the senses—of sight, of hearing, of the muscular sense, touch and smell and taste—in the practice of medicine. This is, of course, no new theme; it is, indeed, a very trite one, and some of you may very likely be disposed to say to yourselves, "All this we have heard before." That may be so. But sound doctrine does not lose its validity because it is not fresh and because it has often been taught before; we must not, I think, assume that it has been acted upon—there are some excellent rules about public health enunciated by Moses which I am afraid are not observed by a good many communities in Europe.

THE UNDERSTANDING EYE.

Now what do I mean by the *intelligent* use of the senses? I mean using with understanding those wonderful natural instruments with which we are provided, and which it is the especial business of a medical education to call into action, to stimulate, to train, and to educate. Take for instance *sight*, in many ways the most important of these senses. You will doubtless have learned that considered merely as an optical instrument the human eye is far from perfect, and any oculist could suggest divers ways in which it could be improved. The important thing, however, is not the mere instrument, it is the mind which is using it. The doctor's eye especially must be a "*seeing eye*," an eye which has not only the power to identify, but an eye which has been trained to look for things. It sees *actively*, it is *aware* of things. The camera and the microscope, though they are optically more efficient instruments, are, properly considered, only extensions of the eye, and the most detailed micro-photograph or skiagram will have no meaning, that is no significance, to an eye which has not been trained not only to identify—that is relatively easy—but to seek for objects, appearances, and signs with an understanding eye.

So, too, with the other organs of sense—the sense of hearing or of touch. The stethoscope reveals nothing except to a trained and discerning ear, and the finger of the physician and surgeon is itself an instrument so delicate and sensitive that I could not, if I wanted to, over-emphasise its service to him, and through him to the ascertainment of signs and symptoms and the causes of sickness and injury. Every physician and every surgeon can tell you of mistakes—some serious, some merely ludicrous—which have been made by young practitioners (and not always by the *young*) by failure to recognise or identify an outward and visible sign which was plain and unmistakable for one who would simply make use of his senses. Thus, how many of us at one time or other have mistaken a glass eye for a real one? On more than one occasion I have seen a student make a careful examination of an artificial eye and write a careful report thereon as to its optical capacities, without discovering that it was not real. Also students in the earlier stages of their career frequently mistake a normal physiological condition for a diseased one.

Some of you are now just entering upon your clinical work. You are looking forward, I have no doubt, to getting into the wards, and you are anxious, and rightly anxious, to get to grips with the more practical side of your work. But glad as you doubtless are to have finished, for the time, with your preliminary scientific studies, you would be making a mistake, and a serious mistake, if you regarded these merely as a regrettable necessity in your career—as something in which you pass examinations—and still more so if you were to cast them behind you as things of the past entirely. You have, in fact, already been learning the great lesson of

observation; your senses have been trained and educated to some extent. In your study of biology you have been searching for and *observing* the manifestations of life in their simplest form, and searching for the explanation of the processes of life. In your anatomy and physiology you have been *observing* and noting the structure and functions, the framework and the organs, the mechanism, physics, and chemistry of the human body, and all this important work, this group of sciences all converging upon the human body, is not only the foundation of your clinical studies, it is the preparation for the art of observation and reasoning which should accompany those studies.

THE EXAMPLE OF LISTER.

The importance of all this is exemplified in the life and teaching of Lister, who is very rightly regarded as the greatest ornament of your school and hospital, as he is one of the chiefest glories of English surgery. Why was Lister such a great force in the history of surgery? And what was it that enabled him to revolutionise surgical practice throughout the world? There are a good many answers to these questions, but if you read his life you cannot fail to be struck again and again by his constant habit of patient *observation*. There was nothing which he stressed more in his teaching than the value of the "faithful eyes." And he practised what he preached. He *saw* things which others either did not see, or if they saw they did not regard as significant. And note this: Lister was well grounded in the preliminary sciences, and he maintained his interest in them and made them his concern right through his life, in spite of the fact that he was a busy practising surgeon, and that, as I can assure you, the leisure of practising surgeons is extremely limited.

Notice this also, that it was Lister's interest in and knowledge of the basal sciences which enabled him to formulate his great principle of antiseptics. I speak of the principle, for the particular method is a matter of secondary importance. There is not at first blush a necessary or an obvious connexion between phenomena of yeast ferments and the employment of agents to prevent the admission of pathogenic organisms to a wound, but the connexion between these two is as well established as anything in the history of medicine. I feel sure, too, that the study of organic chemistry and biochemistry, physics and biophysics, is in the future destined to be very fruitful for medicine, and I hope it may fall to some of you to bear a part in the advancement of medical knowledge in this way.

But you may say, and quite properly, that we cannot all be Listers. Most of you will, no doubt, undertake general practice, and that is a high and an honourable calling. It is upon the general practitioner that in the main falls the duty of ministering to the needs of the mass of the population, and a good medical school will always aim at training and equipping good general practitioners. It would be wrong to suggest that the general practitioner does not make *his* contributions to the advancement of medicine; that, as we know, is emphatically not the case, and many improvements in method and technique are due to busy practitioners working very often in isolation.

On the whole, however, the general practitioner is concerned less with the prosecution of research and the advancement of knowledge than with the early diagnosis and treatment of the varied ailments and diseases. Is there not, in this beneficent work, as great a need as in any branch of practice for the cultivation of continuous, accurate, and intelligent observation? Most emphatically, yes! Indeed, the conditions of general practice necessitate, I think, even greater use—accurate, intelligent use—of the organs of sense than in many other cases. The general practitioner must not only on occasion make quick and important decisions, based, of course, on the best readily available data, but they have also to be made under conditions of difficulty. He may be called out of bed in the night to undertake, unassisted, an emergency operation; he may have to decide in a bad light, in circumstances of difficulty, the nature of a possibly infectious ailment; or, perhaps, after a serious accident to make up his mind what should be done and how he is to set about doing it. The resources of a great hospital are not available to him; he cannot verify his conclusions immediately by the X rays or by sending a smear or other material to the pathological department; he has to act without consultation, without being able to avail himself of modern physical and chemical methods of diagnosis, and, as I have said, he must often act quickly. In such a case is it not obvious that the intelligent—the understanding—use of eye, and hearing, and touch and smell is of fundamental importance?

CONFLICTING EVIDENCE.

Now let us suppose that these faithful servants of ours, the senses, have done their work. They have obeyed your behest, and they have furnished you with their reports on the results of what can be seen and heard and felt and so on. In a great many cases their testimony will be so unanimous and corroborative that the task of forming a conclusion will be a comparatively easy one. Eye and ear and finger all tell the same story in the most significant way. Sometimes, indeed, the eye alone will suffice, and many a physician and surgeon has formed a provisional conclusion as soon as a patient has walked across the room.

The difficulties begin to arise when all the witnesses do not say the same thing—when they appear to contradict each other or when their reports do not agree in emphasis or assurance, even after further trial. They have done their task to the best of their ability—and that best may be an exceedingly helpful one—but the work of deciding is now matter for the mind; that has now to balance, to sift, and reject. Observe that even the negative evidence of the senses can, *if it be accurate*, be of great use. By its use certain possibilities can be ruled out and the field of alternatives is by that much narrowed. The elementary rules of logic will hold good for some way—a thing cannot, for instance, both be and not be. But logic, you will find, certainly the logic of the schools, will not help you greatly. Few minds work by syllogism; and I am fairly sure that very few medical minds do so. As logic and life are very different that is perhaps no bad thing.

After you have narrowed your field very drastically there may still remain several alternatives which are fundamentally opposed although superficially, and in some respects, the opposition is not obvious. How are you to proceed? In a contest of evidence which witness will you believe? Well, it may be that one witness will answer so clearly, so definitely, that you will be safe in placing reliance upon its testimony. It may be that on further inquiry other evidence may be forthcoming which will corroborate that testimony. But not infrequently you will find yourselves taking up with an hypothesis—you say to yourselves, "Let us suppose so-and-so" or "let us assume, provisionally, such and such." In that way you formulate an hypothesis which will account for some of the data. You do so and then test it with reference to the remainder. If it fails completely to satisfy these, then you know that it is inadequate and find another. That in its turn may not meet the case, and you may be driven to adopt and reject several until at last one is met with which will satisfy all the data. If it is the only hypothesis that does so you are then in a position to form your conclusion—you have, in fact, already done so—but it may happen that more than one hypothesis will occur to you, and that two may, though with differing degrees of certainty, harmonise and reconcile apparently conflicting data.

The mind is then working (and with experience is working with extreme rapidity) in selecting, rejecting, harmonising, and reconciling in order to find the solution to the problem which is to form the basis of action. This process, so subtle and delicate, is extremely difficult to define. I can picture it (but

it is not a very satisfactory picture) as a kind of supersensitive organism shooting out innumerable fine tendrils which grope about as it were in the dark, searching for something tangible, and rejecting continuously until it is satisfied. And it is not always a conscious process. Often, indeed, it appears that a subconscious, or an intuitive agency, has been at work, and we make what appears to be a happy guess. Do not misunderstand me or do not be astonished at such a homely and unscientific word. I say "guess" because we cannot without difficulty retrace the path in our mental process which we have taken so rapidly and which has brought us out successfully. We seem to have blundered as it were upon it.

GUESSING.

It is not, of course, a guess any more than Archimedes "guessed" the answer to his problem and shouted "Eureka" in the bath, for the mind has been at work on it. And it is disciplined and trained mind, though it has, perhaps, seemed to play—at any rate it has not in many cases appeared to approach the question directly. Perhaps, some day, our psychologists may throw some more light upon the process—in the meantime I shall say "guess."

But obviously these delicate mental processes, whatever be the name you care to give to them, depend for their validity upon getting your facts right in the first instance. A small and seemingly insignificant difference in your initial data may prove of enormous consequence when it has turned the scale in forming the conclusion With practice and experience you will, of course, become apt to suspect that this or that detail has been overlooked—you will, so to speak, "look again" to see whether the facts have been correctly noted, and see if they do not accord with a probable hypothesis. That, however, will only come with experience, and with experience there will have come—there should have come—the habit of close observation, careful examination, and avoiding those mistakes on which so much depends.

Observe, make intelligent use of all your senses, and again observe! That is, I think, the first great lesson for us—and the rest shall be added unto us.

"PRACTICE."

Delivered at St. George's Hospital Medical School on Oct. 1st, 1923,

BY E. B. TURNER, F.R.C.S. ENG.,
DIRECT REPRESENTATIVE ON THE GENERAL MEDICAL COUNCIL.

GENTLEMEN,—A student of St. George's, I stand here to-day to greet those of you who have experience of this school on your return at the commencement of another academical year, and to welcome those of you who are making their first appearance to-day at the "Corner." I also wish to congratulate all of you both on your choice of a profession, and of the hospital and school in which you will complete your preparation for your future work.

Our profession, proved in peace, found itself in war. From the days before Galen and Hippocrates altruistic, self-sacrificing, truth-seeking, it has worked steadfastly towards the light. Whenever possible, discarding mere empiricism, it has based its advances on the sure foundation of scientific fact, and has attained its present position through the unselfish efforts of numberless workers and observers ever striving to raise the sister sciences of medicine and surgery above the fogs of mysticism into the clearer atmosphere of knowledge and common sense.

Peace and War.

Whenever the acid test of war has been applied the healers have risen to the occasion. Whether Machaon, ἰητρὸς ἀνὴρ πολλῶν ἀνταξιος ἄλλων, a surgeon worth a multitude, Ambrose Paré groping towards the truth, or one who served in the Great War, the navy and army surgeon, whether attempting to prevent disease, formerly more fatal than the bullet, to rescue the wounded, or tend their hurts, has ever placed duty far in front of self. Two men only have ever won bars to the Victoria Cross—Martin Leake and Chavasse, ἀνδρές ἰητροί, both added honour to our profession. They did not see red. Theirs was that cold, clear-cut, "two o'clock in the morning" courage—that courage shown by many another surgeon who, when disaster was imminent, solicitous only for his wounded, with them awaited certain death or capture.

> "Atqui sciebat quae sibi barbaras
> Tortor pararet."

Such is the history in peace and in war of the profession into which you are entering.

This hospital and school in which you will continue your education, and form your medical character has behind it great names, great traditions, and a continuing reputation for good work. It is certain that you will find here greater and more frequent opportunities than you would in some of the larger and more crowded schools for *doing* things yourselves rather than merely watching others do them. For my own part I wish that every one of you had entered and worked here "ab Ossibus usque ad Bacteria," from "the Bones to the Bugs," so that you might be imbued with the esprit de corps and carry the hall-mark of St. George's from "the eggs to the apples" of your professional training, but that at present is not possible.

I have undertaken to-day to speak to you on the subject of "Practice"—the practice of your profession in whatsoever branch of it you may elect to work. Before doing so I think it is very right and proper that I should say something as to your preparation for that work both here and in the outside world.

Factors that Make for Success.

To do well in practice a very sound knowledge of your profession, though by far the most important, is by no means the only factor which makes for success. Personality, presence, tact, sympathy, understanding, and a profound knowledge of human nature are indispensable, and you cannot commence to cultivate these essentials too early. If you, therefore, wish to do well you must become a "man of parts" in every sense of the word. For this reason I urge every one of you to have some interests outside your actual profession—cultivate some hobby. I do not much care what it may be so long as it brings you into contact with your fellow men well away from the bedside, and, if it be possible, takes you into the open air. For some of you this may not be advisable, and your inclinations may lead you to vary your work by taking up some other line of scientific research—well and good—t'will serve. But those of you to whom sport in any form is a real recreation and allurement "grapple it to your hearts with hooks of steel"—so long as you live you will never regret it. Do not confine your efforts to one branch of sport only, you will then not only make a much larger collection of lifelong friends, but a youth thus well spent will fit you both physically and mentally to cope with the hard, exacting work required from you in after life. Play the strenuous games while working here so long as you may be able. Afterwards harass the ball in a milder fashion, slay the grouse, or beguile the fish whenever you get a chance. A sporting reputation will often be of service to you in quite unexpected ways. Early in the war I had to lecture on venereal disease to some thousands of pitmen and other workers at Newcastle-on-Tyne. The chairman of the meeting was evidently rather doubtful how the men would take that which was coming to them. So he proceeded to disinter my long-buried athletic past, and having brought it to light heaved a sigh of relief, and said "I'll just tell my lads that—They'll think a damned deal more of thee as a football player than they will as a doctor."

Do not, however, think that I am putting your amusements and hobbies in front or in place of the real and serious preparation for your future career.

A wise student can combine the two. At the end of 1876 St. George's held the football cup, the athletic shield, and the highest average of passes in all the examinations; and the men who gained the school prizes and passed the examinations were those who played in the fifteen and won the races. "Verbum sapienti satis est."

Twin Rocks of Practice.

You who are now entering this clinical school have surmounted the obstacles of your earlier examinations. I expect some of the troublesome details in the subsidiary sciences will rapidly fade from your memories. Be that as it may, there are two subjects which, if you wish to do really well, you must practically make a part of yourselves—anatomy and physiology. These are the twin rocks on which the whole edifice of your work both here and in practice afterwards is founded and built. What is surgery, even surgery *in excelsis*, but anatomy—anatomy and common sense, while medicine in addition takes unto herself rather more physiology. The General Medical Council, when revising the curriculum last year, was so impressed with the necessity of a continuing knowledge of these two subjects that it was enacted that active teaching of both in relation to medicine and surgery shall be continued during the whole course of professional education, and that the knowledge of students therein shall be thoroughly tested in the final examinations, including the anatomy of the living body and not only that of the subject. Therefore, while working in the wards and school carefully conserve and add to your knowledge of these fundamental sciences.

Whenever you can get a chance *do* things for yourself. Do not be satisfied with watching others demonstrate how they should be done. Under the new regulations for examinations more value will be given for practical work. A brilliant theoretical paper will not, in future, outweigh bad clinical or practical work, as has sometimes been the case in the past, so that no man will take his degree unless he be a capable and practical physician and surgeon. Supplement your reading by the work of your hands on every possible occasion. I most strongly advise every one of you to set his face steadily towards "house" office, either here or, if that be not possible, in some other institution. You will be infinitely better qualified for practice if you have worked as house physician and house surgeon with the help and under the supervision of the staff of some hospital. Not only will the experience gained from your cases and the responsibilities you will have to face be invaluable, but if, as I hope is still the custom here, you teach in the wards as you go round, that teaching will increase your own knowledge and accuracy fourfold. You are working in the "fierce light that beats upon a throne," and should you make a mistake it will be all over the school the next day.

Choice of Career on Qualification.

When you have taken your degree and become qualified, the culminating point of the first stage of your career as a student of medicine—students of medicine you are, and students you will remain until you cease to function—you will naturally give thought to your future, and will seriously consider in which branch of your profession you can best employ your talents and abilities. Those of you who have taken honours and won scholarships will naturally turn towards the higher examinations for the M.D. or the Fellowship, with a view to appointment on the staff of a hospital. If you are well qualified and can give the time and work necessary to obtain and succeed in such a post you can hardly do better. Some of you may intend to specialise in some branch of medicine or surgery. If so, be sure that you know your profession from alpha to omega before you confine yourself to study one department only. To be a really competent specialist a man should have a comprehensive knowledge both of medicine and surgery, and, if possible, should have practised some years before starting on his own particular line of work. Build the house first—fair and strong—add the coping stone and pinnacles of special investigation and research to the completed building. Brudenell Carter was in practice for some years, and served through the Crimean war before he became ophthalmic surgeon to this hospital.

You must remember that the human body cannot be bulk-headed off into various water-tight compartments, only one of which can be torpedoed at a time. The lay public does imagine this. I remember that once when I suggested a surgeon for an operation for carcinoma of the breast, I was met by the friends of the patient with the objection, "Oh, but he is only an abdominal surgeon." And occasionally you will come across even worse instances. Some years ago I was asked to see an individual, and after some little time I discovered that she was consulting, each quite independently of the other, one specialist for her brain and nervous system, a second for her eyes, a third for her skin, a fourth for her heart, a fifth for her liver and digestion, and a sixth (of course) for her uterus, while I, the seventh, poor wretch, was expected to "knit up the ravelled sleeve" and blend into one harmonious whole all these six varied and divergent lines of treatment! I declined the hopeless task. Remember, and never forget, that if you believe, and have exceedingly good reason for believing, that you have forgotten more about the little toe than anyone else ever knew, still that little toe has four intimate and closely connected companions on the same foot, and that a cyclonic disturbance originating in the biggest may even reverberate in the sacred precincts of the smallest. I have in my mind the instance of a friend of mine who, some thirty years ago, told me that one well-known specialist "was burning ulcers off his throat," while another, equally notorious, was "running his gout off through his kidneys with iodine," he having a cavity at either apex.

We cannot get on without specialists. They are invaluable. Some portions of our economy should practically be sacred to them. But when, as has frequently happened, I have been asked what I know of some eminent gentleman—to the public all specialists are eminent—who is supposed to be a specialist for some organ or disease which is so intimately an integral part of medicine and surgery as a whole that every practitioner must have a complete and exhaustive knowledge of it if he is to do any effective work whatever, then it gives me pause to think, and I wonder at the why and the wherefore.

The Services.

Some of you may decide to serve His Majesty and take a commission in the Navy, Army, Air Force, or Indian Medical Service. I am not here to discuss the advantages or disadvantages of each or any of these different Services. St. George's men have done exceedingly well in all of them, and you will carry on the tradition. The Public Health Medical Service, and appointments under various Government departments will attract a certain proportion of you. The degree of D.P.H. is necessary to qualify for these offices. The new regulations, which will shortly come into force, will raise this qualification to the status of an honours degree rather than a mere appendage of letters, and will distinguish those men who intend to devote their life to that which I prefer to call "administrative" rather than "preventive" medicine. During the last few years many attempts have been made to lay down accurately a dividing line between "clinical" and "preventive" medicine—how far the medical officer of health should go in the treatment of illness, and what should be the duties and the attitude of the clinical practitioner to the prevention of disease. For my own part, I have come to the conclusion that whenever I have warned little Jimmy that green apples in the wrong place are a source of acute discomfort, advised that they should be kept from him, and, if required,

administered the harmless necessary castor oil, I was in actual fact combining clinical with preventive medicine, and that it was impossible to separate the two. Therefore, I consider that the terms "clinical" and "administrative" best define the scope of the work of the public health and practising branches of the profession.

Public Health.

In these progressive times there is a magnificent future for the medical officer of health. "Prevention is better than cure," and though he will frequently be expected to prevent the unpreventable, and remove the irremovable his opportunities to improve the physical condition of the people will be abundant, and his influence for good on the health of the community enormous. In all circumstances, and on every possible occasion, he should strive to work hand and glove with the practitioners in his district—his work then will be far easier of accomplishment and more satisfactory in achievement than if a state of armed neutrality or open warfare existed between him and them. One drawback, however, there is to service either under the State or any municipal body. To parody the Victorian poet—

> "Red tape is too much with us,
> Signing and certifying we lay waste our powers."

Minutes and reports are doubtless necessary to the supervising departments, but, writing myself down an ass, I often wonder if equal efficiency could not be secured with half the expenditure of ink, paper, and valuable time, which last, on the part of the doctor, might be so much better employed.

General Practice.

The greater number of you will go out from here and start work as general practitioners, or, in other words, you will take up your positions in the first and front line of defence against the continuous attacks of disease and death. In London and the great industrial centres you will be the first to see and appreciate the beginnings, and the earliest symptoms of mischief which, in many cases may be but of little moment, but in others of the gravest importance. In the sparsely populated rural districts you will be even more responsible. It is hardly possible to overstate the importance of such work, be it undertaken in country or town. In either case your motto must ever be "Principiis obsta," and the early exercise of your intelligence and acumen will save many a life, and put a term to years of unnecessary invalidism. However much you may be tempted never palliate symptoms only. Get right down, discover the cause of the trouble, and if possible remove it. You will have the advantage of seeing your cases when it is possible to benefit them. Your supports, the heavy guns, the consultant and the specialist, often have no chance of doing much good, as they may arrive on the scene too late. Therefore, during your preparation for future practice cultivate without ceasing the ability to make an early and accurate diagnosis, coupled with a sound prognosis, in every case you may see, however commonplace and trivial at the first glance it may appear. You can then take whatever action may be necessary, and when required call up your reserves and send out a "S.O.S." in time.

Years ago a St. George's man, a man of experience and knowledge of the world, said to me: "To a man who knows his work well two things are difficult in practice. The first to get into a house; the second, to get out of it." You will find this very true, and though as you grow in experience and status the first may be easier, the second will become increasingly difficult. You are asked to visit a sick person. You will soon find that on many occasions a very urgent summons is dictated by discomfort rather than by danger, while the quiet little note or message, "If you are in this part of the world come and see me some day—I am not feeling very well," may have behind it a grumbling appendix, the little malignant lump calling out for immediate attention, or the beginnings of some definite and serious disorder. Very early in the course of your work you may—you probably will—be confronted with a situation such as you have never had to face during all the years of your training. You visit a person whom you may never have seen before. Apparently there is very little wrong, but after examination you find such unsuspected conditions of disease—hepatic carcinoma, for instance—that a fatal termination is only a matter of a short time. In such circumstances what are you to do? What are you to say? The task is indeed difficult. To combine consideration and mercy for your patient with justice to his relations and yourself may well call for the exercise of the greatest tact and the most profound sympathy.

Cases not Met With in Hospital.

Let me warn you that you will not see in private practice the same sort of cases which you meet with in hospital. By this I do not mean that pneumonia in a private house differs from pneumonia in a hospital ward. The illness, quâ illness, and pathological change, are the same. The sufferers may differ, but that is another story. In a great hospital you have gathered together persons afflicted with severe and pronounced disease, the victims of serious accidents, and cases which, from their nature and environment, are beyond the possibility of proper treatment by the outside practitioner. Therefore you will not see so many grave cases wherever your work may lie. In industrial districts they are more frequent, as the British workman is slow to seek advice unless his ailment is painful or keeps him from work. He calls for aid when his condition approximates to that of the hospital patient. In mining areas you will have to deal frequently with many serious accidents. But if your lot should be to look after the well fed, well clothed, well housed sections of the community, you will be surprised at the small proportion of cases of really serious illness you will be called on to attend. I should astonish you if I were to tell you the number of cases of tuberculosis of the lung which have been under my care during the last 40 years. Since I was house physician here I have only seen three cases of enteric fever and one of glaucoma. Being familiar with all the grave manifestations of disease which you meet with in the wards you are able to go with an exceeding confidence into a house, in the sure and certain faith that whatever you may there find cannot be worse than that which you have habitually seen treated here. Again I repeat that "house" office is invaluable. Above all things, never forget to carry with you into your private practice that habit, the most important of any you may acquire in hospital—the habit of always examining and noting the condition of every organ in every case. You will find that a very large proportion of the mistakes which other people make are not due to any lack of knowledge or skill, but simply and solely to the fact that one or more important organs have not been carefully passed under review.

The work in hospital is done with the aid of every possible appliance—mechanical, chemical, optical, and electrical. Above all things never become slaves to your instruments. Cultivate at all costs that which, wanting a better term, I will call your clinical instinct. Make your diagnosis with your brains, your eyes, your fingers, and your ears, and then bring in your machinery to confirm or disprove your findings. Of late years I have noticed that many men are very chary of expressing an opinion, even upon a fairly obvious case, until they have the way made plain before them by laboratory tests and instrumental assistance. To use the invaluable methods of modern day scientific research in this fashion is to degrade them to the function of crutches, the constant use of which will enfeeble your intellectual muscles, and doom your independent perceptions to atrophy. Let them rather take the place of a walking stick, which will support your steps in rough places without paralysing your limbs. Times with-

out number you will find the eye, the finger, and the stethoscope, used with a trained clinical intelligence, beat the test tube, the X ray, and the swab. Acting on the knowledge thus obtained, you frequently can save much valuable time to the great benefit of your patient. Use to the very fullest extent, but do not abuse, the assistance given to you by science.

Bedside Qualities.

If when you visit a sick person you are fit and well and, if I may use a slang expression, "full of beans," you may be quite certain that you will do that individual much more good than if you yourself were feeling depressed and below par. Some persons call this the "Gift of Healing." Patients are quick, indeed, to notice your manner and derive confidence and hope or the reverse from your demeanour. The convention that the habiliments and physiognomy of the physician should be as sombre as those of his occasional sequela, the undertaker, is now relegated to the limbo of superstitions outworn. If you are by nature "merry and bright," optimistic and high-spirited be thankful that you are so constituted, and exercise those powers to the fullest extent. If you be not, "Assume a cheerfulness though you have it not." A gentleman, who afterwards became a very distinguished surgeon to this hospital, was asked either by Brodie or Cæsar Hawkins (I forget which) to help him at an operation which in those days was always dangerous, and frequently fatal, and afterwards to stay in the house in case of any emergency. The patient died, but left special instructions that the fees due to this young surgeon should be paid three times over, because "he cheered me up."

While holding the most exalted ideals of personal and professional honour, so far as possible, be all things to all men. A hyperæsthetic enjoying bad health, and a breadwinner striving and fretting to get back to his work require very different management if you are to do your very best for both. To accomplish this requires tact—the saving grace of professional success. You will invariably find if you have brought the life, motion, and fresh air of the outer world into the confined atmosphere of the sick room, if you have discussed the iniquities of the Chancellor of the Exchequer, the latest scandal in the law courts, and the great performance of Yorkshire in the county championship, that you will leave the sufferer having done him more good than could be effected by the most cunningly compounded mixture of drugs in the British Pharmacopœia. At all times and in all seasons be very gentle with your patient. The heaviest handed and kindest hearted physician who ever went round the wards of this hospital, what time he severely pounded an extremely tender and sensitive abdomen, thusly exhorted the students standing around: "Never excruciate your patient—you can find out all you want without excruciating your patient—never excruciate a patient." The particular victim in this case had the gift of humour, and fully appreciated the precept and the example.

Take great pains to make an invalid as contented and comfortable as possible. Let the yoke of your restrictions be as easy, and the burden of your directions as light as the exigencies of the case will allow. The bed of sickness is not the bed of Procrustes. You must fit the bed to your patient—not your patient to the bed. The early success of homœopathy was, in the first instance, a revolt against too much calomel, colocynth and senna. The drastic drugs which are the salvation of a navvy are anathema to a thin-skinned, fair-haired, blue-eyed girl. Never prescribe for a person until you have shaken hands with him, and thus assured yourself of the texture of his skin and mucous membrane.

Acceptance of Responsibility.

Every general practitioner should be prepared to accept and face his own responsibilities. I do not mean by this that a fiery, untamed enthusiast should rush in to operate where an expert might well fear to tread, or that a man should be so obsessed by his own opinion of his own skill and importance as to be offended at the idea of a consultation, however difficult and obscure the case may be, but that he should treat and continue to treat until its conclusion, every illness which comes within his powers. I remember, they are all dead now, men of great repute with the public who never by any chance took any responsibility whatever if they could by any means avoid it. If they were confronted with an ordinary conjunctivitis or simple inflamed throat they at once invoked the aid of Sir Adenoid Tonsil, or Mr. Cataract Lens, and stood by while, under the ægis of these great names, nature recovered the patient. Such methods, though probably sound enough as regards these particular practitioners, do not conduce either to the good of the patient or the repute of the profession.

I have said, and even written in my haste, that the medical profession is divided into two classes, fools and physicians. The fool treats the illness, the physician the patient. This fact was impressed upon me years ago by a country unqualified assistant of great experience, in those days when unqualified assistants were lawful. I had treated many cases of pneumonia here, and confidently ordered for a strong full-blooded robust countryman the same treatment which I had seen succeed with the poor half-starved denizens of the Embankment and the parks who were admitted into hospital. The assistant remonstrated with me—of course I knew much better than he did and persisted in my line of treatment. The next day I had to confess that I was wrong and he right, and fortunately gave fresh directions in time to allow nature to save the patient. Be very friendly with Nature. She is ever striving to heal, and though in her efforts to do so she frequently destroys the individual, she means well. Do not rudely obstruct her path. Guide, lead, direct her.

Cures and Charlatans.

You can but seldom claim that you have "cured" a person. I am not now speaking of surgical cases. A gangrenous appendix successfully removed is a "cure," and there are even a few specifics in medicine. The first day I came into office as house physician I was taught this fact by the late Dr. Dickinson, and I have never forgotten the lesson. A girl wished to go out on Tuesday instead of the usual Wednesday. I took Dickinson to see her and he consented to her discharge, and directed me to sign her card. I did so putting as the result "cured." He saw what I had written, and at once said "Cured—who cured her? I didn't. Wilson (the outgoing house physician) would never have the impertinence to say he did. You can't, you only saw her for the first time to-day. Give me her card." Taking it he scratched out "cured," and in his own unmistakable handwriting inscribed "recovered." How true then! How true now! We aid "recovery," we but seldom "cure." You will, however, during the whole of your professional life hear of numberless fearful, wonderful and marvellous "cures" attributed to or accomplished by quacks, herbalists, bone-setters, "Ambubaiarum Collegia, Pharmacopolae hoc genus omne"—unqualified as a rule, though sometimes I am ashamed to say a charlatan disgraces a medical degree. You will *hear* of these "cures," you will *see* the other side of the picture. When an individual considers himself so far superior to the common herd that the orthodox is not good enough for him, and either by grace of nature or in some cases due to the skill and technical competence of the charlatan a good result is obtained, then everyone must hear of it. At all times and in all places he spreads the good tidings abroad, considering his happy fortune a tribute to his own intelligence. And he is ably seconded by the quack—especially if he be a personage in the public eye. Like Mr. Vincent Crummles we may indeed wonder "how these things get into the papers," but there they appear, and the whole matter flares up into that glare of publicity and blazon of advertisement which is the very life blood and breath of existence of the quack, but infamous conduct on the part of a member

of a learned profession. Such are the cases of which you will *hear*—you will *see* the failures. No publicity here; no credit here to quack or quacked. It will be your task to attempt to repair the damaged joints, to palliate the sufferings, soothe the downward path, and sign the death certificates for those who come under your care "cured" of tuberculosis, or suffering from malignant disease allowed to increase until operation is neither advisable nor possible. But *few* hear of these disasters. They sink into oblivion—the oblivion of the sacred confidence between doctor and patient. Be very tolerant in all your dealings with such cases. Even in the present day, when we discuss insulin, appendicitis, and the sterilisation of the unfit at every dinner table before the women leave the room, the general public is very unknowing of things medical. "Populus vult decipi et decipiatur."

Cults, Religious and Other.

Very frequently you will come into contact with the votaries of those cults, religious, semi-religious, psychic, and imaginative, which profess to remove all the ills which flesh is heir to, by suggestion, and other means of influencing the nervous system. As with quackery so with these scarcely less harmful phantasies. You will hear only of their virtues. You will experience their vices. But in your haste do not write them all down as pure humbug. Though an abomination to your intellect and intelligence, still as the small boy said of the lie, you may sometimes find them a very present help in time of trouble—especially in those very difficult and unsatisfactory cases in which there is nothing whatever the matter with the patient. I mean by this when he has no actual organic lesion, or definite disease. Great success occasionally attends an attack along these lines in cases of purely functional disorder. Many years ago with the cordial approbation of the patient's father and the aid of the late Lord Lister, we successfully exorcised an entirely imaginary needle which in less than a week simply raced from the hip to the knee, causing, during its express journey, very acute discomfort to a hyperæsthetic young lady and her long-suffering friends and relations. We employed the methods of modern-day Christian Science, faith-healing, higher thought and pseudo-surgery. Our efforts were crowned with success. The needle troubled her no more.

Year by year you will see the rise and follow the decline and fall of many new diseases, of many loudly vaunted treatments, and will regret the premature discussion in public of matters of real scientific interest while yet in the experimental stage. It will be your lot to watch an endless procession of fetishes, each one surviving until pushed out of the limelight by its successor. In the morning they flourish like a green bay tree, in the evening they are cut down, dried up and withered.

"Truditur dies die
Novae que pergunt interire lunae.'

There is a story of Sir William Gull, in his day a very great physician, and a consummate man of the world, which though old will bear repetition. A lady asked him whether she should try some much advocated new treatment. Gull replied "Certainly, my dear lady, most certainly—only mind you go while it cures."

"Time like an ever rolling stream,
Bears all these 'fads' away.
They fly forgotten as a dream
Dies at the opening day."

Relations with Colleagues.

In the course of your future work you are bound to come in contact with your fellow practitioners in many ways, and on many occasions. In our profession we are extremely individualistic, and it is certain that sometimes there will be friction between us, sometimes even leading to a quarrel. This is always unfortunate and generally unnecessary. If you make a rule to put yourself in the other man's place, and act as you think he should act towards you, fighting will be at a discount and ethical rules superfluous. Should you ever hear from a lay person that a doctor has given some extraordinary opinion or stated some impossible fact, don't you believe it. A dear old friend of mine once asked me if it were possible for a person to have some fearful, wonderful and impossible condition of disease. I answered "No." She replied "But her doctor told her she had." I said "No doctor could have told her such a thing. It is medically and surgically ludicrous." "But," she insisted, "So-and-So distinctly told me that was what her doctor said." My reply finished the discussion—"I am quite sure he did not—for I am So-and-So's doctor." The moral is obvious.

If a medical practitioner can find the time he should, as a citizen, interest himself and, if possible, take part in the public work of his town or district. As members of the public health committee of any municipality two or three unofficial doctors will often be the little leaven which leavens the lump, and their timely advice and influence may turn well-meaning, but ill-informed city fathers from some action which might gravely affect the health of the community.

Whether in the future you may become consultant, specialist, or general practitioner, always bear in mind that you are not dealing with inorganic material in a test-tube, or crucible, but with living human organisms each differing from every other, complete and perfect in itself.

"Of all God's workes which doe this worlde adorne,
There is no one more faire and excellent
Than is man's body, both for powre and forme,
Whiles it is kept in sober government:
But none than it more fowle and indecent,
Distempered through misrule and passion bace,
It groes a monster, and incontinent
Doth loose his dignity, and native grace:
Behold, who list, both one and other in this place."

These words are as true to-day as when Spenser wrote them nearly 400 years ago, so let your advice ever tend to this ideal, always urging and leading on those who entrust themselves to your care to attain that "Mens sana in corpore sano" the "summum bonum" of human existence and happiness.

The words which I have spoken to you to-day naturally apply chiefly to that form of practice of which alone I have experience, in which you work with your patient as individuals subject only to the common law of the land, and the ethics of your profession. But if in this present time any of you either by inclination, or of necessity, choose to enter into an engagement to treat persons by contract, then most of what I have said applies also to that form of practice. Should you make such a bargain you will carry it out both in the spirit and the letter. Whether or no you should undertake such work is for yourselves to decide.

Rewards and Friendships.

In whichever branch of your profession you may finally practise you will make lifelong friendships. You will acquire merit when you deserve blame, and blame when worthy of praise. These things all come into the day's work and a philosopher regards them with equanimity.

You have the world before you. You are the heirs of the ages. It is your privilege to begin where we leave off. The progress in every branch of our art which we have seen in our time is marvellous, and when you in your turn, "forty years on," look back, all the signs portend that you will have left even more behind you. Where we laboriously treated disease with drugs and diet the surgeon now, with a short circuit, gives sometimes in weeks the relief we failed to obtain in years. A short cut indeed! The gynæcologist has relegated to the scrap-heap of worn-out, disused machinery the instruments for craniotomy. With his mother MacDuff in his hundreds walks the streets, a living testimony to aseptic surgery.

"For those of us whose lot, sooner far than later, will issue from the urn—for those of us whose blunted lancet and perished stethoscope, like the arms and war-weary lute of Horace will soon adorn the wall, the

time is at hand when we must humbly hope that, with that great poet, we may be able to say, 'Militavi non sine Gloriâ.'"[1]

You are now straining at the leash, crouched for the start, ready and eager to grasp the bâton which will send you on to run your allotted portion of the never-ending relay race against the teams of suffering and death; but when, in your turn, you hand on your trust to those who will follow after could we but burst the eternal exile of the boat and re-visiting the glimpses of the moon see the world, as you will leave it, healthier and therefore happier, rejoicing in your prowess, we should indeed be proud. We are confident that great will be your efforts, great your success, and speeding you on your way I salute you—"Ave atque Vale."

[1] "Omnes eodem cogimur, omnium
Versatur urnâ serius ocius
Sors exitura et nos in æternum
Exsilium impositura Cymbæ."

"Et militavi non sine gloriâ,
Nunc arma defunctamque bello
Barbiton hic paries habebit."

TEAM-WORK IN NATURE.

Delivered on Oct. 2nd at the Opening of the Winter Session of the Middlesex Hospital.

BY SOMERVILLE HASTINGS, M.S. LOND., F.R.C.S. ENG.,
SURGEON IN CHARGE OF THE EAR AND THROAT DEPARTMENT.

I AM informed that the primary object of an introductory lecture is to congratulate those students who are just commencing their medical studies on the choice of a noble profession, and give them some useful advice on entering it. I shall omit the useful advice, but I would, nevertheless, like to address myself mainly to those students who are here for the first time.

THE STRUGGLE FOR EXISTENCE.

Darwin and Wallace have taught us that "the struggle for existence" and the "survival of the fittest" are the principal factors in organic evolution. But Darwin is quick to add, in his monumental work the "Origin of Species," that he uses the term "the struggle for existence" in a large and metaphorical sense, including dependence of one being on another. That Darwin appreciated the interdependence of one organism on another is shown by the well-known story of the cats and clover. The success of the red clover crop depends on the fertilisation of its flowers. Humble bees are the only insects that visit these flowers, and if humble bees are absent no seeds will be set. The chief enemies of humble bees are field mice, which destroy their comb and nests. "Probably two-thirds of them are destroyed all over England." Cats, which destroy mice, may therefore determine the success or otherwise of the clover crop. Darwin points out how in numberless animal societies the struggle between separate individuals for a means of existence disappears and is replaced by coöperation, and how that substitution results in the development of faculties which secure to those animals the best conditions for survival. It is, therefore, plain that those who would have us look upon Nature as a perpetual struggle among half-starved individuals thirsting for each other's blood are only showing us one-half of the picture.

It would be possible to cite innumerable examples—bees, ants, corals, the migration of birds—to show how much of team-work there is among creatures of the same sort. But plants and animals of different kinds also coöperate together to a much larger extent than was formerly supposed, and I might easily spend the rest of my time in reminding you of how plovers live with crocodiles, and sea-anemones with hermit-crabs, to the advantage of both; of how tiny sea-weeds live in the interior of marine worms and each gains by the association; of how the pollen of flowers is carried to other flowers by bees and other winged insects, who are rewarded for the work they do by the honey they collect.

TEAM-WORK BETWEEN FUNGI AND OTHER ORGANISMS.

This afternoon, however, I want to confine my remarks to one of the lowliest groups of plants, the Fungi, and describe to you a little of the recent work that has been done in connexion with team-work between these and other plants and animals.

The Lichen.

And first of all, let us look at the Lichens. Every rock, fence, or tree which remains undisturbed for a year or two in the country gets covered over with lichens. I say in the country advisedly, because lichens will not tolerate the smoke of towns, and with one exception, "the London Lichen" (*Lecanora galactnia*), no lichens are to be found within many miles of the centre of London. It is said that the authorities of the Zoo, ignorant of this fact, covered the Mappin terraces with lichens from the country, and were not a little surprised that none of them would grow. To the medical student lichens are chiefly of interest because litmus is prepared from one of them. In the old days of medicine things were different. It was then believed that Providence had placed on plants "signatures" or resemblances—more or less vague—to parts of the human body. For instance, the skull lichen (*Parmelia saxatalis*), sometimes found growing on old bones lying in the open, was considered worth its weight in gold for the cure of epilepsy, and it was especially prized when taken from the skulls of those who had been hanged or executed for offences.

Lichens are important in Nature because they form an advance guard of organic life. They grow in deserts, and on mountains reach right up to the limit of perpetual snow. On bare rock flattened lichens first appear; more leafy varieties follow. Around these soil slowly collects, and thus the way is prepared for other plants.

A lichen is really a dual organism, being composed of a fungus united with a green plant (an alga). Now, all fungi, however much they differ, have this in common: that being devoid of green colouring matter (chlorophyll) they are unable to break up the carbonic acid gas of the air and obtain their carbon from it. Like ourselves, therefore, they have to obtain their food ready made from other plants or animals. If a lichen be cut into very thin slices and examined under a microscope, it will be seen to be composed of a network of fine colourless tubular cells (the fungus), enclosing within its meshes, especially near the surface, a number of bright green algal cells. These green cells are closely allied to similar cells to be found abundantly in moist situations—on tree trunks, walls, &c. The two constituents of a lichen can be grown apart under suitable conditions. In most cases the alga gets on fairly well, for it is used to living alone, but the fungus is less happy. If the two are re-united a lichen is once more formed.

Now, what is the exact relationship between the fungus and the alga of a lichen? Do they "love, honour, and cherish" one another, or is the fungus very much the senior partner of the firm? The view generally held is that both constituents derive direct benefit from the alliance; that the alga obtains water and mineral matters collected from the soil by the fungus in exchange for carbon products extracted from the air by the aid of light. Recently two Russian botanists, Elenkin and Danilov, have revived the old theory that the fungus is parasitic on the algal cell. They state that fine branches of the fungus pierce the algal cells and, forming a delicate network within, rob them of their cell-contents. A few years ago Robert Paulson and I spent much time in cutting and staining sections of different sorts of lichens. In this work we found the method of staining introduced by Victor Bonney especially valuable. We were able to show for the first time that the algal cells produce their spores normally within the lichen, but we never saw a single algal cell penetrated by a fungus thread.

Nitrogen Fixation in Nature.

Before turning to examples of team-work by fungi and flowering plants, I would like to remind you of a

few rather dry facts of chemistry. The ultimate end of all living matter is decomposition, decay. The carbon compounds break up into water and carbonic acid gas, and the carbonic acid gas is returned to the atmosphere. The nitrogen containing compounds or proteids are finally resolved into ammonia and nitrogen, and the nitrogen leaks away into the atmosphere. The water and carbonic acid gas can be used again by green plants, and with the help of light built up once more into those complex substances of which they are composed, but they cannot touch the nitrogen at all. The constant tendency of ordinary organic life is therefore to increase the nitrogen in the air at the expense of that contained in plants and animals, and had not Nature provided some means of replacing the nitrogen thus lost the world would very rapidly become uninhabitable for plants and animals. That cultivated plants often suffer from nitrogen hunger was perhaps the most important agricultural discovery of the last century, and to make up this deficiency thousands of tons of nitrates from South America and sulphate of ammonia from the gas works are added every year by farmers to their land. It is true that every flash of lightning results in the combination of small quantities of free nitrogen to form ammonia and this is brought down to earth by dew and rain. But the total amount of ammonia thus carried down does not exceed 5 lb. per acre per year—an amount entirely inadequate to replace that lost by the ordinary processes of decay. At the end of the last century, therefore, it became evident to scientists that there must be some way as yet undiscovered by which Nature carries out the combination of free nitrogen to make it available to organic life.

Root Nodules of Leguminosæ.

For centuries it has been known that certain plants have a wonderful power of rendering barren tracts of land capable of producing crops. Thus Pliny tells us that "The bean fertilises the ground in which it has been sown as well as any manure." Waste land in Germany and America has been rendered fertile by the planting of lupins. Now it is only leguminous plants like the pea, bean, lupin, clover, and the like that have this power and they all have nodules on their roots. This is easily seen when a bean or lupin is pulled up. These root nodules are the key to the situation, for in them is taking place what is to us the most important example of team-work in Nature for without it we could not live.

A very small bacterium (*Pseudomonas radicicola*) is met with in abundance in the soil, more especially where leguminous plants have been grown. When it comes across a root hair of a leguminous plant it punctures the cell wall and enters one of the cells. There it multiplies rapidly until a mass of closely packed rod-shaped bacteria embedded in a gelatinous substance is produced. This infection thread, as it is called, passes inwards from the cells of the root hair to those of the root from which it grows. The irritation thus caused results in rapid multiplication of the cells of the root and the formation of a nodule or swelling containing cells crowded with bacteria. These root nodules have been shown experimentally to absorb nitrogen from the air and the bacteria they contain become filled with nitrogen-containing food substances. But about the time of flowering a change occurs. A ferment is secreted which dissolves the bacteria and the valuable food they contain. After this has been absorbed by the plant the nodules shrivel and decay. A few of the bacteria, however, escape destruction and find their way into the soil. These root nodules undoubtedly show a "community of interest" between the two partners, but whether we can consider it a true example of symbiosis is, at least, open to question. The bacteria score at first in that they acquire a comfortable home with everything found, but in the end the higher plant comes off best.

Other Flowering Plants.

A careful study of flowering plants teaches us that nearly all have fungi associated with them at some stage or other of their life-history. With the Darnel (*Lolium*), a common grass, the fungus is there all the time—from the cradle to the grave, so to speak. The grass appears perfectly healthy and is thought to score in that the fungus threads in the seed form a store of food easily absorbed by the young plant. In return for this the fungus is housed and fed and allowed to pass from one generation to another in the seed.

In the Heather (*Calluna vulgaris*) a fungus is also found in every part of the plant, but though present in the seed coat, it never extends directly to the seed. If heather seeds dipped in strong disinfectant and then washed are sown on sterilised soil they germinate imperfectly, develop one or two leaves, and then die. If, however, the fungus obtained from the heather is added to the soil on which such seedlings are growing they develop normally and form healthy young plants. The heather absolutely refuses to grow without its fungus partner.

[Mr. Somerville Hastings here described how a fungus is constantly present in the roots of orchids, and how the seeds will not germinate without it.]

Toadstools and the Mycorrhiza.

For many generations people have thought that there was something mystic and uncanny about toadstools. Because they come up quickly and have no obvious root they were thought to have been placed in woods and fields by witches and fairies, and it was told how the fairy-ring toadstool (*Marasmius oreades*) always came up where fairies had danced at night. Then scientists came along, and finding that toadstools were always attached to fine filaments of a fungus plant ramifying in the soil, they thought they had solved the problem. They told us that the fungus plant of which the toadstools were but the fruits, formed for the purpose of producing and distributing spores, lived on decaying animal and vegetable matter in the soil, and they proceeded to give the toadstools themselves many and long Latin names. But when the scientists turned their attention to trying to work out the life-history of these same toadstools, as they are now doing, they found that things were not always quite so simple and that an increasing number of toadstools were found to be constantly associated with some other plant. The Fly Agaric (*Amanita muscaria*), with its beautiful red top covered with white spots, for example, is invariably found close to where birch trees are growing or have recently grown. When the fine filaments from a toadstool are carefully traced to their source (a by no means easy task) they are often found to end in the roots of some tree or herb. In a few cases this association is definitely harmful to the plant—the fairy-ring toadstool plant, for instance, is said to grow parasitically on the roots of grasses—but in most cases the herb or tree appears to be in no way inconvenienced by the presence of its fungus partner. The association of fungus with the roots of a higher plant is spoken of as a mycorrhiza. If the dead leaves around almost any woodland tree be scraped away, numerous fine branching rootlets will be seen passing n all directions through the decaying leaves The ends of the rootlets appear swollen and with a pocket lens fine fungus threads can be traced to them. When the threads reach the rootlets they surround them with a closely woven mantle, but in the case of most trees do not penetrate to any extent into the tissues of the root. The immediate effect of the fungus on the rootlets is to arrest their growth in length, and as a result of this more frequent branching occurs. Already some 80 different associations between fungi and woodland trees have been described, and this does not by any means complete the list. Indeed, mycorrhiza would appear to be constantly present during the life of most forest trees. It is certainly present in young seedlings of the birch, beech, and edible chestnut. Paulson states that mycorrhiza has formed on birch seedlings growing on light soil within a month of the germination of the seeds, and although he has examined a large number of seedlings of all ages he has never yet seen one on which mycorrhiza had not formed or was not forming. The presence of mycorrhiza can

hardly be really harmful to the birch seedlings, for such plants grow as much as two feet during the first year.

The Meaning of Mycorrhiza.

We are now in a position to inquire what is the real meaning of mycorrhiza. Is it useful to fungus or higher plants, or to both? How did it arise in Nature? In the first place, mycorrhiza is no new-fangled device. Examples are found around roots of fossilised plants from the Devonian and lower coal measures. Again, it is widely distributed in Nature, and has been described in association with liverworts, mosses, horsetails, club mosses, ferns, conifers, and flowering plants. Gallaud carefully examined the roots of 35 different flowering plants of widely separated genera. In 30 he found fungi present with great regularity and obtained them also with less constancy from the roots of four of the others. That mycorrhiza is generally harmless to plants would seem to be borne out by the examination of birch seedlings, and Gallaud's observations on the cuckoo-pint (*Arum maculatum*), a plant which is found sometimes with and sometimes without mycorrhiza. Gallaud could find no difference between infected and non-infected plants attributable to infection.

In this connexion the following observations by Paulson are not without interest. The story is still incomplete, but as far as it goes it would seem to indicate that the birch has been "fitter to survive" when its young root is supplied with fungus. The birch has a small winged seed. The styles formed in the early spring dry up and remain persistently attached to the seed. Close examination of the seeds before germination, and even before they have fallen to the ground, has revealed the fact that fine fungal threads often exist around these styles and stretch from one style to another. Between the styles is a small hole in the seed coat through which the young root is bound to pass when the seed germinates. On the surface of the young root are a number of hooks which prove remarkably effective in catching the angled weft of fungus threads, tearing them from the styles and carrying them downward to the soil.

The association between the "stump tuft" toadstool (*Armillaria mellea*) and a Japanese orchid (*Gastrodia elata*) is of importance as it would appear to give the clue to the origin of mycorrhiza. The stump tuft is one of the commonest of British fungi. It often forms large groups of toadstools at the root of a tree or stump. The fungus is a destructive parasite, and more trees are probably destroyed by it than by any other parasitic agent. Having infected one tree it passes through the ground to the next in form of thick black masses of fungus threads resembling leather bootlaces. When it has killed a tree it forms similar masses between the wood and bark. These become obvious when the bark has decayed or has been removed. Although this fungus usually attacks trees it is not above destroying potatoes if its root-like threads come across them.

The Japanese orchid *Gastrodia*, which grows in woods, forms tuberous masses resembling a large potato buried in the ground. Every year these tubers give off offsets just as a potato does, but no leaves or flowers are in the ordinary way produced. Each year the offsets become progressively smaller until finally they are incapable of further growth. If, however, one of the root-like masses of fungus threads from the stump tuft comes in contact with the orchid tuber a wonderful change occurs. The fungus fastens on to the tuber, and its threads penetrate its outer covering. But instead of succumbing to the attack and giving up its store of nourishment as the potato does, the orchid is able to hold the fungus in check and make use of the food it brings. As a result of this a full-grown offset is produced, which the next year develops flowers and presumably seeds as well. Here we have a fungus well known all over the world as a destructive parasite. It attacks the thickened underground root of an orchid, but becomes worsted in the struggle and is made to give up some of the booty it has stolen from the forest trees around.

May not mycorrhiza have arisen somewhat in this way? May not the higher plants have developed an immunity against fungi originally parasitic on their roots, so that they are now able to hold them in check and actually derive benefit from them?

Dispersal of Spores.

But it is in connexion with the dispersal of their spores that some of the best examples of team-work between fungi and other creatures is seen. Many toadstools are frequently eaten by slugs, and the germinating spores of several kinds were found by Voglino in the digestive tracts of slugs that had eaten them. Further, this observer showed that the spores of other species that could not be made to grow elsewhere germinated readily in the fluid from the digestive tract of a slug.

There are a large number of fungi especially characteristic of tropical regions, that show an unmistakable adaptation for the dispersal of their spores by insects. Perhaps I shall explain my meaning best if I give you a brief description of the stinkhorn (*Phallus impudicus*) common in our woods. In its early stages it closely resembles an ordinary hen's egg with a softened shell lying half embedded in the soil. When mature its outer gelatinous coat ruptures at the top, and the stalk, which had previously resembled a compressed sponge, rapidly expands until in from one to three hours it has increased its length from an inch and a half to six or eight inches. Carried aloft by the white stalk is a conical cap covered by a dark-green glutinous substance in which are embedded millions of spores. After a few hours, especially in the presence of light, the dark-green slimy material begins to give off a fœtid and disgusting smell. Bluebottles and smaller flies, attracted by the smell, eagerly devour the dark-green slimy material, and so greedy are they that but rarely do we find a fully developed stinkhorn with any trace of the dark slime upon it. The spores pass unchanged through the insect's body, and in this way their dispersal is effected.

Here we have a wonderful piece of fungus mimicry. In colour, consistency, and odour the spore-containing mass closely resembles the putrescent substances which form the normal food of blow-flies; and that insects are taken in by it is shown by the fact that they not infrequently lay their eggs on the fungus and around. Again, the timing arrangements are very perfect. While the spores are maturing they are carefully protected, and not until they are ready for dispersal are they exposed. They are then raised up on a white stalk which is easily seen from a distance. Other members of the class are brightly coloured. The lattice fungus (*Clathrus cancellatus*) is bright red all over and the dog-stinkhorn (*Mutinus caninus*) is red at the top. Some of the exotic forms resemble flowers. An Australian species (*Lysurus australiensis*), which came over to this country with fodder, has this appearance.

It is well known that edible truffles are eagerly sought after by pigs and greedily devoured by them, and the fact that these fungi are only strong-smelling when quite mature and filled with ripe spores suggests that this must be something of a coöperative arrangement, and that it is really to the interest of the fungus to be thus eaten. The false truffle (*Elaphomyces*) is also regularly dug up and eaten by squirrels and rabbits, and gnawed specimens are often seen where these animals have been burrowing. The rabbit apparently eats the fungus in the burrow, but the squirrel digs it up first. Spores of the false truffle have been found in the fæces of wild animals, and no other method for the dispersal of the spores of the false truffle is known.

These are a few examples of team-work. When you visit the wards of the Middlesex Hospital you will see even finer examples. There you will find physicians, surgeons, sisters, nurses, not to mention the humble specialists, all united in the single purpose of healing the sick. In the medical profession the value of team-work has been recognised from the earliest times. When an engineer finds out a new process he patents it, so that none but he may use it. When a doctor

makes a discovery it is the tradition of his profession that he should publish it to the world, so that all his colleagues and their patients may benefit thereby. For this reason as well as for others, I congratulate you who are joining us to-day on the choice which you have made.

EARLY EXPERIENCES WITH INSULIN IN THE TREATMENT OF DIABETES MELLITUS.

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SEVERAL publications regarding the uses and properties of insulin have already appeared in this country, notably those by Banting, Campbell and Fletcher,[1] and by McLeod,[2] but hitherto little detailed information has been published as to the actual results in individual cases. The following investigations have been carried out by us in connexion with the joint scheme of work on insulin initiated by the Medical Research Council. The methods used were: Blood-sugar, Folin and Wu[3]; blood-bicarbonate, Van Slyke, Stillman and Cullen[3]; alveolar CO_2, as described by Campbell, Hunt and Poulton[4]; urinary sugar, Benedict[13]; total ketones (aceto-acetic and β-oxybutyric acids expressed as acetone), Van Slyke[6]; and Van Slyke and Fitz,[7] ammonia by formol titration, urea by hypobromite.

Treatment of a Refractory Case.

This case was specially chosen for treatment in the first place as the patient had on previous occasions been under the care of one of us and we had watched the disease making rapid progress.

CASE 1.—Male, aged 17½, had had the disease since March, 1921. He was under treatment in Guy's Hospital in May, 1921, and responded well to fasting and dietetic treatment, since the blood-sugar at 3 P.M., nine days after the beginning of the treatment, was 0·08 per cent. No sugar was passed on a sufficient diet, containing 4 oz. of bread and plenty of 5 per cent. vegetables. He was sent out on a diet containing 2 oz. of gluten bread, so that he was a long way within his carbohydrate tolerance. He was readmitted in July, 1922. His weight had increased by a stone. He had been eating porridge for three months. There was much sugar in the urine and much ketosis. He became sugar-free with fasting, but the sugar returned at once on beginning a diet of vegetables, protein, and fat.

Readmission to Hospital.—He was readmitted in March, 1923, for insulin treatment. There was much ketosis; he was feeling weak and sleepy, and it was thought he would not have lived more than a few months.

The patient was under treatment with insulin in hospital for 108 days. The extreme severity of the case is one of the reasons for describing it in some detail. It was found that at least 75 units of insulin were required each day to keep the blood-sugar within reasonable limits and the urine free from sugar. The diet was varied to some extent, but the calorie value was rarely above 2000, so that it could not be said to be excessive, considering that the patient was walking about. As it was he often felt hungry. His body-weight increased from 129 lb. to 150 lb. at the end of the treatment. During part of the time he was allowed practically unlimited 5 per cent. vegetables in the form of greens, tomatoes, salad, rhubarb, &c., and he used to take about 32 oz. a day. During the last month of his treatment the amount was reduced to 16 oz. Graham and Harris[18] have emphasised the importance of restricting as far as possible the amount of carbohydrate in the diet when giving insulin. We have adopted the same plan from the beginning of the treatment; for it seemed to us that only by such means would it be possible for a patient to regain some carbohydrate tolerance.

It is, of course, difficult to exclude the possibility of the patient's stealing food. However, he was an educated boy and understood the reason for his treatment, and we believe he was honest. At one period he was kept under lock and key in a private ward for some days, and no marked difference in the blood- and urine-sugar was observed.

We can thoroughly confirm all that others have said about the beneficial effects of insulin treatment in his case. His body filled out and his skin became softer and smoother, and his hair more glossy, and he had the appearance of an extremely healthy young man when he left the hospital. His constipation vanished and he noticed that emissions, which had disappeared since November, 1922, returned 14 days after beginning the insulin. The latter was given in three equal doses at 6 A.M., 12 noon, and 6 P.M. each day before meals. At first we used what we had ourselves prepared in the laboratory by arrangement with the Medical Research Council; but the commercial preparation was employed as soon as it was available. No serious local trouble was experienced in spite of the numerous injections. The blood-sugar was nearly always examined at 11.15 A.M., just before the mid-day dose of insulin.

Progress of Case.—To indicate the progress of the case, the average excretion of sugar, acetone bodies, &c., has been taken for various periods, when the conditions of diet, insulin dosage, &c., remained constant (see Table I.). There was a preliminary period, when the diet contained 2 oz. of bread. During three days there was an average excretion of 132 g. of sugar and 8·2 g. acetone. After fasting for three days the blood-sugar was 0·23 per cent., but rose above this figure when a diet of vegetables, proteins, and fat was given, in spite of the administration of 24 units of insulin daily. However, the excretion of sugar and ketones and the ammonia index were less when the insulin was given than when it was omitted during the next period. Only when a dose of 40 units was combined with a fast day did the sugar and aceto-acetic acid in the urine practically disappear. Then followed two periods of seven days on the same diet, when the dose of insulin was 60 units and the excretion of sugar and ketones was much less than before the fast day. During part of this time, as already stated, the patient was locked in a private room so as to exclude the possibility of his taking carbohydrate of his own accord. On increasing the dose slightly to 65 units the urine-sugar and ketosis were practically abolished, though the diet remained the same, and he had definite hypoglycæmic symptoms—viz., headache, giddiness, shakiness, sinking feelings, and hunger. The blood-sugar at the height of the symptoms was found to be 0·095 per cent. These feelings came on in waves, and there was also profuse sweating. He had noticed flushing and increased sweating when the blood-sugar still remained high. This point is referred to later.

The amount of insulin was at once reduced to 50 units, and he remained sugar-free for three days. As his blood-sugar rose to 0·19 the amount was again increased to 60, but in spite of this sugar appeared in the urine for a period of eight days. Although the calorie value of the diet was increased a little by the addition of fat, he again ceased to pass sugar for seven days and his blood-sugar fell to 0·16 per cent. Wishing to bring this figure still lower, we increased the amount of insulin to 65 units daily, but in spite of this during the next five days he excreted 11 g. sugar daily, and his blood-sugar rose to 0·22 per cent. On increasing the amount to 75 units daily he became sugar-free for nine days, but then passed 22 g. of sugar on one day with a blood-sugar content of 0·18. Suspecting that the large supply of 5 per cent. vegetables was responsible for the sugar, we reduced them to 4 oz. daily. His blood-sugar fell progressively from 0·18 per cent. to 0·13 per cent., and a mere trace of sugar was passed. He was then given 16 oz. of 5 per cent. vegetables, and after this no further change in his diet was made. His blood-sugar varied from 0·13 to 0·20, but he only passed traces of sugar as long as he was free from infection.

From the description just given the patient appears to be subject to variations in the severity of his complaint. For instance, examining the blood-sugar figures for the days preceding his hypoglycæmic symptoms they show the beginning of a remission (0·26 per cent., 0·25 per cent., 0·19 per cent.), thus explaining the marked fall in blood-sugar apparently produced by increasing the insulin from 60 to 65 units. The exacerbation of symptoms, as shown by a rise in blood-sugar and glycosuria, was often associated with infection, such as a cold in the head, and there was

* Working on behalf of the Medical Research Council.

sometimes a slight rise in temperature. In particular towards the end of the treatment he had a sharp attack of tonsillitis with a temperature of 102·8° F., and he passed a measurable amount of sugar—viz., 8 g. per diem.

The blood bicarbonate was estimated at the beginning of the treatment. It rose to normal at a time when the patient was still passing measurable though small amounts of ketones.

The Action of Insulin on Ketosis.

One of the most striking effects of insulin is the rapid fall in ketosis which follows its administration. Davies, Lambie, Lyon, Meakins and Robson[3] observed a fall in the blood ketones beginning within an hour or so after injecting insulin; in association with this there was a rise in blood bicarbonate and a fall in blood-sugar. We have carried out observations upon somewhat similar lines, and in addition we have determined quantitatively the ketones in the urine. Since there is a simultaneous fall of ketones in both blood and urine, it is clear that insulin acts not by causing an increased excretion of ketones, but by preventing their formation in the body, or perhaps actually metabolising them in some way.

The rapid action of insulin was well illustrated in Case 2.

CASE 2.—Male, aged 9 years, seen by one of us in conjunction with Dr. R. G. Pollock, of Warlingham. The disease began acutely in January, 1922. At the beginning he had done moderately well with dietetic measures, including weekly fast-days, and the urine had remained sugar-free for certain periods, although he had been allowed some starch in his diet. Just before treatment the sugar had shown a rapid increase and there was much ketosis. The blood-sugar was 0·35 per cent. Insulin, 10 units, was administered the next day at 6 P.M. In three and a half hours the blood-sugar was 0·11, but had risen to 0·4 24 hours later. The percentage of sugar in the urine fell from 4·6 to 0·4 in six hours. The alveolar CO_2 rose from 21 to 28 mm. in three and a half hours. The urine collected for 12 hours before the insulin contained 10·1 g. total acetone, and that collected for 12 hours after only contained 1·6 g.

CASE 3.—Table II. contains the figures obtained in this case, a female, aged 29 years, whose disease began in August, 1922. An injection of 10 units produced a fall in blood-sugar from 0·27 to 0·12 in two hours, and three hours later the blood-sugar still remained low. Sugar disappeared from the urine for at least six hours. The fall in the total ketones of the urine was also marked. There was a small rise in alveolar CO_2. The ammonia index (percentage of total nitrogen excreted in the form of ammonia) rose slightly, because there was a rather bigger relative fall in the output of total nitrogen than of the ammonia. The blood bicarbonate (molecular concentration of $NaHCO_3$) showed an increase from 0·025 to 0·029 in two hours.

CASE 4.—Male, aged 38, admitted on May 27th, 1923, for pneumonia and pleurisy. He developed diabetic coma soon after admission. (He had been previously treated in January, 1923, by one of us by fasting and dietetic measures, but continued to pass some sugar in the urine with a blood-sugar of 0·33 per cent.) The blood was taken when he was comatose (see Table II.) at 11 A.M. The blood-sugar was 0·56 per cent.; the plasma bicarbonate was reduced to 0·008 (normal 0·034); and the concentration of blood ketones was 0·18 per cent. He was given an injection of 40 units of insulin with 50 g. of dextrose, and 2 pints of sterile normal saline through a nasal tube, and subsequently 1 pint of saline hourly for six hours. The blood was examined again at 4 P.M. The blood-sugar remained unaltered, so that the insulin had just neutralised the effect of the dextrose given. The plasma bicarbonate had increased to 0·013 and the blood ketones had diminished to 0·12 per cent. There was an associated fall in the amount of ketones excreted in the urine.

Shortly after the first dose of insulin the patient returned to consciousness and the pulse improved. The intake of fluid was continued, after the second dose of insulin, and sodium bicarbonate was ordered by mouth. At midnight the patient suddenly collapsed and, in spite of a further dose of 20 units of insulin, died within an hour or two. This case is not a fair test of insulin treatment in diabetic coma owing to the pulmonary complications present. We have since treated successfully an uncomplicated case of diabetic coma.

Several things emerge from a critical examination of the analyses in this case. A figure of 16 for the ammonia index is surprisingly low considering the extent of the ketosis, and there was a rise to 21 rather than a fall, when the ketosis became less. The plasma bicarbonate was extremely low, corresponding to a very high concentration of blood ketones. In Table II. the excretion of ketones in the urine is given as 0·87 g. per hour before the insulin. This figure is probably too high, because the bladder was not emptied with a catheter at 8 A.M., and at this time the patient was more or less unconscious. Consequently, the 636 c.cm. of urine collected at 11 A.M. were probably secreted over a longer period than the preceding three hours. The amount excreted from 11 A.M. to 4 P.M. was only 0·28 g. There was also a fall in percentage of ketones in the urine from 0·41 to 0·26. Hence, the decrease in blood ketones was due not to increased excretion, but to diminished production (or increased destruction) in the body. In fact, considering the high value of the blood ketones at 4 P.M., we must look upon the small output in the urine as indicating some failure on the part of the kidney to excrete them.

Our case is of some importance since there is at present a tendency not to prescribe sodium bicarbonate and other metallic bases in cases of diabetic coma. Sodium bicarbonate was not ordered in the present case until we had been made aware of the very low value of the plasma bicarbonate. This case convinces us that it is most important to give sodium bicarbonate and other alkalies in moderate quantity whether by mouth, or intravenously, as soon as possible in the treatment. It is unsafe merely to arrest the production of ketone bodies by means of insulin and dextrose. There is some further evidence that this failure of excretion was due to the body being impoverished by loss of metallic bases. The fall in plasma bicarbonate in severe cases is usually regarded as compensating for the large amount of β-oxybutyric and aceto-acetic acids in the blood, so that the sum of their molecular concentrations should be constant. However, calculation in the present case shows that this was not quite true, the value being 0·039 before treatment and 0·034 five hours later; in other words, the plasma bicarbonate did not rise as much as would be expected, considering the fall in blood ketones. Again, the ammonia index rose (as already mentioned), which suggests that ammonia was produced in default of metabolic bases to help the excretion.

CASE 5.—Male, aged 29, who had had symptoms of diabetes for nine months. The data as regards the effect of insulin on the blood-sugar and ketosis are shown in Table II. On June 11th there was a moderate degree of ketosis. The fall in plasma bicarbonate was roughly equivalent to the increase in the acids of the blood, since the sum of the two was 0·0365, which is about the upper limit of the normal plasma bicarbonate. Considering the low concentration of ketones in the blood, their excretion by the kidney was satisfactory. With the exception of the period from 2 to 4 P.M. it fell parallel to the blood ketones. The patient was given one dose of 10 units of insulin a day, from June 11th, and a week later the analyses of blood and urine after insulin were repeated. The blood ketones had fallen to 0·0024 per cent. and the hourly excretion of ketones was only 0·03 g. After insulin the blood ketones and ketones excreted in the urine were still lower.

The Effect of a Single Large Dose of Insulin.

The following case shows the effect of a single large dose of insulin:—

CASE 6.—Female, aged 28 years, suffered from thirst in May, 1922. She was admitted to Guy's Hospital in January, 1923, with diabetes. She complained of cramps in the calves and feet, and had extensor plantar reflexes. The sugar disappeared from the urine after two days' fast, but reappeared on taking a diet of 5 per cent. vegetables, protein, and fat.

She was readmitted for insulin treatment. On a diet of 5 per cent. vegetables, protein, and fat for a week, she passed daily a very constant amount of sugar—on the average 127 g. The blood-sugar was 0·42 per cent. On fasting for two days the sugar vanished from the urine (see Fig. 1), and the blood-sugar fell to 0·125 per cent. at the end of the fast. She was then given a diet of vegetables, protein, and fat in gradually increasing quantities, and the amount of sugar in the urine gradually increased as shown

TABLE I. (*Case 1*).

Days.	Insulin units per diem.	Blood.		Urine per diem.			Diet per diem.			
		Sugar per cent.	Bicarb. mol. concn.	Sugar g.	Total ketones g.	NH_3 index.	—	Cals.	Protein g.	Carbohydrate g.
3	0	—	—	132	8·2	12·3	V.P.F. + 2 oz. bread.	1660	69	15
3	0	0·23	0·023	35	8·6	18·0	Fast	—	—	—
5	24	0·21	0·034	42	2·8	8·5	V.P.F.	1540	81	15
4	0	0·33	0·027	113	14·2	13·8	"	"	"	"
5	40	0·335	—	94	6·9	9·5	"	"	"	"
1	40	—	—	Tr.	0	—	Fast	0	0	—
7	60	0·25	0·033	20	0·2	4·4	V.P.F.	935	62	19
7	60	0·25	0·03	22	Tr.	4·1	"	1755	83	21
3	65	0·105	—	0	"	—	"	"	"	"
3	50	0·12	—	0	0·9	2·1	"	1805	93	"
8	60	0·19	—	5	—	—	"	"	"	"
7	60	0·16	—	0	—	—	"	2030	"	"
5	65	0·22	—	11	—	—	"	"	"	"
9	75	—	—	0	—	—	"	"	"	"
1	75	0·18	—	22	—	—	"	1854	73	5·5
3	75	0·155	—	0–Tr.	—	—	"	"	"	5·5
4	75	0·13	—	"	—	—	"	1950	80	14
8	75	—	—	8	Tonsillitis.		"	"	"	"
6	75	0·19	—	0–Tr.	—	—	"	"	"	"

Tr = trace. V.P.F. = 5 per cent. vegetables, protein, fat.

TABLE II.

Time.	Urine. Vol. c.cm.	Sugar %.	Ketones %.	Ketones g. per hr.	Ammonia index.	Blood. Time.	Sugar %.	Plasma bicarb. mol. concn.	Ketones %.	Sum of mol' concns. of bicarb. and ketones.	Alv. CO_2 mm.
					Case 3.—10 units at noon.						
8 A.M.–12 noon	400	2·8	1·03	1·03	21·0	12 noon	0·27	0·025	—	—	23·3
12 noon–3 P.M.	150	0	0·88	0·44	27·0	2 P.M.	0·12	0·029	—	—	27·2
3–6 P.M. ..	300	0	0·32	0·32	25·0	5 " ..	0·125	0·028	—	—	25·6
6 P.M.–8 A.M.	900	1·4	0·75	0·48	22·0	—	—	—	—	—	—
					Case 4.—Coma, 40 units at 11 A.M.						
8 A.M.–11 A.M.	636	2·7	0·41	0·87	16·0	11 A.M...	0·56	0·008	0·18	0·039	—
11 A.M.–4 P.M.	536	2·3	0·26	0·28	21·0	4 P.M...	0·56	0·013	0·12	0·034	—
					Case 5.—10 units at 2.10 P.M., June 11th.						
8 A.M.–2 P.M.	240	2·6	0·38	0·15	8·2	2.5 P.M.	0·22	0·028	0·05	0·036	—
2–4 P.M. ..	185	2·5	0·50	0·46	7·8	3.50 "	0·22	—	0·038	—	—
4–8 P.M. ..	180	0·6	0·29	0·13	6·7	5·45 "	0·16	—	0·029	—	—
					10 units at 12.10 P.M., June 18th.						
8 A.M.–12.30 P.M.	354	0·9	0·037	0·03	8·8	12 noon	0·185	0·023	0·0024	0·023	37·7
—	—	—	—	—	—	2·0 P.M.	0·16	—	—	—	—
12.30–4.30 P.M.	340	Sl. tr.	0·0014	0·001	9·3	4.0 "	0·13	0·026	0·0008	0·026	38·1
—	—	—	—	—	—	6.5 "	0·14	—	—	—	—

Sl. tr = Slight trace.

TABLE III.

—	Case 1.			Case 9.			Case 6.		
Date	April 19th.	June 18th.	June 17th.	May 3rd.	May 8th.	May 23rd.	—	June 20.	June 21.
Method of administration	Subcutaneous.	Mouth c. sod. bicarbonate.	—	Subcutaneous.	Rectum.	—	—	Subcutaneous— At 6 A.M. and 6 P.M.	At 6.30 A.M. gum insulin
Insulin, units ..	20	25	0	10	10	0	—	10	30
Time in hours— 0	0·335	0·19	0·135	0·175	0·21	0·16	Time— 6.30 A.M.	—	0·16
1							10.30 "	0·16	—
2	0·315						11.30 "	—	0·08
3	—	0·23	0·16	0·17	0·30	0·255	2.30 P.M.	0·225	0·11
4	0·29						5.30 "	0·225	0·18
5	—	0·25	0·195		0·28	0·22			June 22nd
Maximum difference	−0·045	+0·06	+0·06	−0·005	+0·09	+0·095	10.30 A.M.	—	—
Sugar in urine ..	—	—	—	0	0·8 %	0	—	—	0·23

CASE 9.—Insulin given just before the midday meal, which contained 1½ oz. bread.
CASE 6.—Blood-sugar at 10.30 A.M. on June 22nd was 0·23 per cent.

TABLE IV.—*Respiratory Exchange* (*Case 1*).

No.	Date.	CO_2 c.cm. per min.	O_2 c.cm. per min.	R.Q.	Blood-sugar %.	Date.	CO_2 c.cm. per min.	O_2 c.cm. per min.	R.Q.	Blood-sugar %.
		With insulin.				*Without insulin.*				
1	July 6th	302	253	1·19	0·155	July 10th	336	390	0·86	—
2	July 7th	334	306	1·08	0·19	July 10th	307	356	0·86	0·32*
3	July 9th	349	355	0·98	0·20*	July 11th	306	362	0·84	0·26
—	Mean	328	305	—	—	—	316	369	—	—

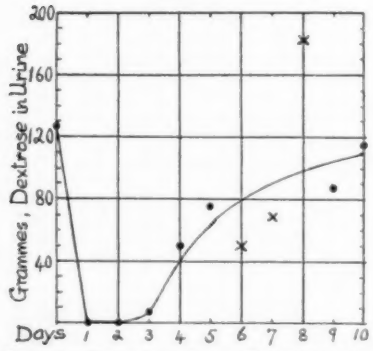
* After lunch, at 9.30 A.M.

by the curve. On the sixth day (the fourth day after the fast) insulin was given, but owing to a mistake 100 units were injected instead of 10. The mistake was realised immediately, and the patient was given 50 g. dextrose, and 4 oz. bread by the mouth, so that she received in all 110 g. carbohydrate. This treatment was successful in preventing hypoglycæmia from the large dose of insulin, since the blood sugar, which was 0·28 before the insulin, was 0·285 two hours later, and 0·24 the next morning (20 hours later). She felt very hot and sweated, but we would lay emphasis on the fact that these so-called hypoglycæmic symptoms are not necessarily due to hypoglycæmia in the usual sense of the word. Case 1, for instance, noticed frequent hot flushes and sweating ever since the beginning of his treatment, even though the blood-sugar was still high. In fact, hypoglycæmic symptoms arise when the blood-sugar falls below may well have been elaborated temporarily into some complex which broke down again into dextrose, when the effect of the insulin had worn off. However, 75 g. of dextrose remains unaccounted for, and it is difficult to avoid the conclusion that it was burnt, because it apparently disappeared completely.

Variations in Effect of Insulin on Level of Blood-sugar.

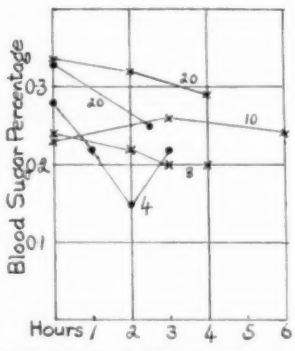
The amount of insulin required to produce a given fall in blood-sugar varies greatly in different patients. We have, however, found a considerable variation at different times in the same case, in the sense that a dose of insulin produces a much bigger fall in blood-sugar at the beginning of treatment than it does later on.

FIG. 1.



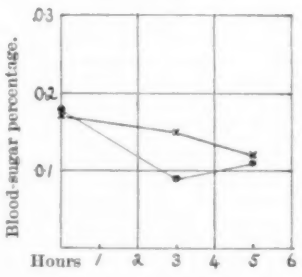
CASE 6.—Sugar in urine. Patient fasted the first two days. Insulin (100 units) administered on sixth day, immediately followed by intake of 110 g. carbohydrate.

FIG. 2.



CASE 1.—Blood-sugar immediately before and after injection of insulin. The numbers in the diagram refer to the numbers of insulin units employed.

FIG. 3.



CASE 8.—Blood-sugar immediately before and after injection of insulin (10 units).

The black dots indicate determination carried out shortly after a period of fasting, and the sign (×) indicates determination on an adequate diet.

the percentage to which the body is accustomed for the time being, so that they may be felt when the blood-sugar is normal or even higher than normal.

As will be seen from the curve, the amount of sugar excreted was diminished on the sixth day when insulin was given, and on the seventh day; but on the eighth day the excretion suddenly rose to 182 g. (blood-sugar 0·43 per cent.), but fell back again on the ninth and tenth days. The curve in the figure has been drawn to represent what the excretion of dextrose would have been if no insulin had been given on the reasonable assumption that the insulin was alone responsible for the irregularities on the sixth, seventh, and eighth days (marked in the figure by crosses), and that the sugar output was otherwise gradually increasing after the fast to the previous level.

Inspection of this diagram gives us information of interest as to the action of insulin. It has been suggested by Kellaway and Hughes[9] from experiments on normal subjects that insulin may cause sugar to be built up into some fat-like complex, containing considerably less oxygen than carbohydrate. Now if this building-up process occurs in diabetes it might perhaps be supposed that after the action of the insulin was over (if only one dose were given) this complex would break down again into sugar which would be entirely excreted. Our observations provide evidence that storage of at least part of the sugar in some form took place.

The evidence is as follows. On the first two days showing the effect of the insulin (sixth and seventh days in Fig. 1) there were 50 g. less sugar excreted than would have occurred if no insulin had been given. In addition, 110 g. of carbohydrate were ingested in the form of glucose and bread on the sixth day. Consequently at the end of the seventh day the body contained 160 g. of extra carbohydrate owing to the insulin. On the third day the blood-sugar rose, and 85 g. of the extra dextrose were excreted. After this the excretion was normal. Consequently 85 g. of dextrose were retained for two days in the tissues, but not in the blood, and

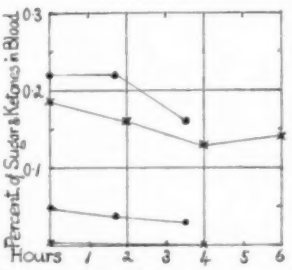
Case 7, seen with Dr. G. L. Cutts, was a man aged 29, who had had diabetes for one and a half years. The urine became sugar-free after three days' fasting. He was then given a diet of vegetables, protein, and fat (calorie value increasing from 1200 to 1500), and on the day after fasting with blood-sugar, 0·32 per cent., he was given an injection of 10 units of insulin, and this was repeated each day following. The blood-sugar was estimated four hours later on several days. The urine became sugar-free after the first two injections. After the second injection the blood-sugar was 0·12 per cent., and after the sixth injection 0·22 per cent.; and a similar value was obtained two days later after the eighth injection. The effectiveness of insulin in reducing the blood-sugar apparently diminished quite soon after the treatment had begun. This patient had suffered from boils for over two months, and these completely disappeared in eight days from the beginning of the insulin treatment.

Similarly, in Case 3, we obtained a fall from 0·27 to 0·12 after the first injection of insulin (10 units), but later on values of 0·18 and 0·21 per cent. were obtained three hours and five hours respectively after injecting twice as much insulin as before. Case 1 was a good instance of this variability (see Fig. 2). The insulin was always given at 11.45 A.M., just before the mid-day meal. The blood-sugar was determined just beforehand and at varying intervals afterwards. The patient had fasted for three days and then had an increasing diet of vegetables, protein, and fat. On the fourth day, after the end of the fast, while the calorie value of the diet was 1540, the first dose of insulin—viz., 4 units—was given. There was a marked fall of 0·13 per cent. in the blood-sugar in two hours. On the next day, with 8 units, the fall was less—viz., 0·04 per cent.—and it took place more slowly. One month later 10 units were given, and this was not sufficient to prevent the rise of blood-

sugar due to the meal. The patient had gained 9 lb. in weight by this time.

We have similar results (also shown in Fig. 2) when 20 units of insulin were given to this patient, one of them on April 19th just before, and the other on April 21st just after, a one day's fast. In the latter case a fall of 0·08 per cent. in the blood-sugar was noticed, and in the former case the fall was only 0·045, and also took place more slowly. A very similar result was obtained in Case 8 (see Fig. 3), a man of 18, whose symptoms of diabetes were first noticed 15 months earlier. The first dose of insulin was given on the fourth day, after a two and a half days' fast. There was a fall of 0·09 per cent. in the blood-sugar. He was treated with 10 units each day at noon, and 37 days later, after he had gained 1 lb. in weight only, the observations were repeated. The fall in blood-sugar was only 0·05, and it took place more slowly. The diet consisted of vegetables, protein, and fat. The calorie value was approximately 25 per kilo, and the protein 1 g. per kilo. After the fast the diet was gradually increased up to this level, which was reached on the fourth day.

FIG. 4.



CASE 5.—Sugar (upper two curves) and ketones as acetone (lower two curves) in blood, after 10 units insulin.

Our first thought was that the variable response to insulin might be associated with the ketosis. It was possible that when the ketosis was marked at the beginning of treatment, the effect of insulin might be greater than later on when it had practically disappeared. Certainly in Case 1 there was a marked difference between the ketosis on the first and second days of insulin treatment, for on the first day 26 g. of ketones were excreted, and on the second day only 3·9 g. This view was tested in Case 5 (see Fig. 4) and found not to be correct. On June 11th 10 units of insulin, given just before the mid-day meal, caused a fall of 0·06 per cent. in the blood-sugar, when the blood contained 0·05 per cent. ketones, while on June 18th the same dose of insulin caused a fall of 0·056, which was practically the same as before, while on this occasion the blood only contained 0·0024 per cent. ketones. The diet of the patient was constant and contained carbohydrate, only in the form of vegetables and cream.

Another explanation of the apparent diminution in the effect of insulin is to be sought in the state of nutrition of the individual. In Case 3, when insulin was first given, the patient had not long before completed a period of three days' fasting, while in April, a month later, when the 10 units of insulin were given, the patient's nutrition had greatly improved, since he had gained 9 lb. in weight. We have already in this paper provided some evidence, which agrees with the work of others, that one action of insulin is to facilitate the storage of dextrose in the tissues in some form. This storage would more readily take place if the tissues had been depleted of dextrose by previous fasting. Further, as the nutrition of the patient improved, the depôts for the storage of carbohydrate in the tissues would be filled up, so that there would not be the same tendency for dextrose to be absorbed out of the blood-stream by the action of insulin.

It might, of course, be argued that the patient had become definitely worse under our treatment—i.e., that he had lost tolerance for sugar so that insulin became less effective; but against this view was the result of a single day's fast in Case 1, since a greatly increased fall in the blood-sugar was observed with 20 units of insulin on the following day. It is more likely that the carbohydrate depôts became temporarily less full, so that the insulin was more effective. We must at present regard it as rather an open question whether by keeping the depôts more or less empty by constant under-feeding, any curative action of insulin is possible in severe cases of diabetes, as Graham and Harris [13] have suggested.* The calorie value of the diet of our patients was not high considering that they were walking about. They always said they felt hungry, and it would have meant a great deprivation if we had diminished the amount of food still more, so as to prevent their gaining weight, though we might have increased the effectiveness of the insulin by this means. As it was, in Case 1 we increased the amount of insulin instead of reducing the amount of food.

Methods of Administration of Insulin.

We have tried the effect of modifying the administration of insulin. In addition to the results detailed below, we obtained a little evidence that absorption may take place after injection into the maxillary antrum in Case 1. Mr. T. B. Layton kindly carried out this operation for us under local anæsthesia. It is also possible that some absorption occurred after administration by means of a duodenal tube in Case 1. The tube was located by means of X rays.

Administration by Mouth.—It has been suggested that destruction of insulin in the stomach by pepsin might be avoided by giving alkali. Consequently the following procedure was adopted. One drachm of sodium bicarbonate in 5 oz. of water were first given to Case 1, then the usual dose of 25 units of insulin with 1 drachm of sodium bicarbonate in 5 oz. of water, and in five minutes' time ½ a drachm of sodium bicarbonate in 3 oz. of water. The blood-sugar beforehand was 0·19 per cent. (see Table III.); three hours later 0·23; and five hours later 0·25. A control experiment was carried out by observing the blood-sugar at the same hour of the day when no insulin had been administered by any route. The blood-sugar rose steadily from 0·13 to 0·19 after five hours, which was just the same rise as was observed when the insulin was given by mouth.

Administration by Rectum.—The following case presents an example of the effect of rectal administration.

CASE 9.—Male, aged 30, was admitted under one of us in December, 1920, in a semi-comatose state.[4] The urine became sugar-free and the ketosis had practically disappeared on discharge. He was readmitted under Dr. Beddard in April, 1922, passing sugar (blood-sugar 0·4 per cent.), but became sugar-free with dietetic treatment. The effect of rectal and subcutaneous administration was tried just before his dinner, which consisted of vegetables, protein, and fat, but which also contained 1½ oz. bread (see Table III.). On May 3rd, after subcutaneous injection, the blood-sugar remained about the same, the effect of the insulin being neutralised by the bread. On the 23rd bread was given without insulin and the blood-sugar rose from 0·16 to 0·255 in three hours, but no sugar was excreted; while on the 8th when insulin was given per rectum before a similar meal containing bread, the blood-sugar rose from 0·21 to 0·31, which was practically the same rise as when no insulin was given at all. The urine on the latter occasion contained 0·8 per cent. of sugar. Hence it appears that insulin produced no effect when administered per rectum in this case.

Administration of Gum-insulin.—An attempt to reduce the number of injections per day was made by giving the insulin in a vehicle which was only slowly absorbed by the tissues. We made a solution of insulin in a 20 per cent. solution of gum-arabic for the purpose.

(1) By such means a rabbit was given three times the dose of insulin usually required to send it into convulsions. The rabbit did not go into convulsions,

* Since the above was written we have heard of three patients who have noticed reactions with doses of insulin that had previously not produced any reaction, and in certain other cases the blood-sugar tolerance curve has been found to improve after a course of insulin of about a month's duration. All these patients were taking a diet that satisfied them, though it contained no carbohydrate other than that in the form of green vegetables.

but about seven hours' later was not quite normal. It recovered and was quite normal next day. The blood-sugar before insulin was 0·13 per cent., and fell to 0·065 per cent. after three hours. On two previous occasions the blood-sugar fell to 0·045 and 0·05, when about one-third the present dose was given without gum.

(2) Case 6 had symptoms of hypoglycæmia when 30 units of insulin were given daily in three injections of 10 units each. She was given 30 units in 20 per cent. gum before her breakfast. She had only slight symptoms of hypoglycæmia three hours later, and these lasted two hours, when her blood-sugar was found to be 0·08 per cent. Twelve hours later she had an attack of urticaria, but there was no local reaction at the site of injection.

These results show a distinct slowing of the rate of absorption of insulin due to the gum.

Respiratory Exchange.

Banting and his colleagues[2] found that the respiratory quotient (R.Q.) in depancreatised dogs rose after sugar and insulin, while the glycogen in the liver was increased. Kellaway and Hughes[9] found in the case of a normal subject, who had fasted for 15 hours, that after insulin there was a rise in the R.Q., with increased output of CO_2. The oxygen intake was once slightly diminished, and in a second experiment slightly increased. Dudley, Laidlaw, Trevan, and Boock[14] found that normal animals under the influence of insulin showed a transient rise in R.Q., but the O_2 intake and the CO_2 output fell continuously, and at the end the liver contained less glycogen than normal. Meakins and his colleagues[3] found that the R.Q. rose to some extent after glycogen and insulin, though the oxygen intake, as judged by the calorie values given, probably fell.

Case 1 seemed to us to be a specially suitable case for studying the respiratory exchange owing to the very large amounts of insulin he was having. Douglas and Haldane's closed circuit apparatus[15] was used, the expired air being analysed for its CO_2 content as suggested by Krogh.[16] The pulmonary ventilation was recorded by placing the rubber balloon in a jar and connecting the latter with a Krogh's recording spirometer. The volume of CO_2 expired was calculated from the CO_2 in the expired air and the pulmonary ventilation.

The first three observations (see Table IV.) were carried out when the patient was having 75 units of insulin a day in equal doses at 6 A.M., 12 noon, and 6 P.M. The patient had his usual breakfast consisting of two eggs, 2 oz. of bacon, 1 oz. cream, and cooked greens at 6.30 A.M. He rested on a couch in the respiration room for about three-quarters of an hour before the experiment. The first and second experiments were carried out at 9.30 A.M., three and a half hours after the insulin had been administered, and the third at 12 noon, six hours after the insulin. In the third experiment the patient had had his lunch, consisting of 2 oz. cheese, two bran and agar cakes, and 1 oz. butter at 9.30 A.M. Very high respiratory quotients, over unity, were obtained in the first two experiments, while the value in the second was 0·98. At this stage we do not wish to lay any stress on our finding, that the R.Q.'s were actually above unity, but only that they were uniformly high. The blood-sugar varied from 0·155 per cent. four hours after the insulin to 0·20 per cent. five hours afterwards.

The last three experiments were carried out under similar conditions, with the exception that the last dose of insulin had been taken 23½ hours before the first experiment. The results offer a great contrast to the first three experiments, the R.Q. varying from 0·84 to 0·86. The CO_2 output was approximately the same, while the O_2 intake was considerably greater. The blood-sugar was 0·32 on July 10th and 0·26 on July 11th. Immediately after the completion of the experiments insulin was recommenced, and on July 12th, at 10.50 A.M., the blood-sugar had fallen to 0·155.

It is possible that there is a difference between the action of insulin in normal and diabetic organisms, but we think that in the latter insulin certainly causes a rise of R.Q. and a diminution in the intake of oxygen.

Dale[11] has suggested a very simple explanation of these facts—viz., that with insulin carbohydrate is oxidised in place of other foodstuffs. This seems a satisfactory hypothesis, but it cannot be the whole truth, as we have already shown that some sugar may be stored for a while. The problem is—in what form is it stored? Kellaway and Hughes[9] suggested some fat complex, because the high R.Q. was associated with a diminished oxygen intake, and if our R.Q.'s above unity are substantiated, there would seem to be no other possible explanation. But for the present we would suggest that the storage takes place chiefly as glycogen, and we would explain the low oxygen intake with insulin on the lines of Dale's hypothesis as follows: After stopping insulin in our case the oxidation of protein and fat takes the place of carbohydrate; but the specific dynamic action of these substances is greater than that of carbohydrate, and so the oxygen intake is increased. When our respiratory experiments with insulin were being carried out, it is unlikely that storage of glycogen was occurring, as the patient had been under treatment so long that all the depôts would be full. However, when the insulin was stopped, the converse process probably took place, and the hyperglycæmia arose partly from the escape of dextrose from the depôts and partly from the food.

In conclusion, we should like to thank the Medical Research Council and the Parsons Research Fund for financial assistance and for providing pancreas when we were ourselves preparing insulin. We should also like to thank various members of the staff of Guy's Hospital for facilities for investigating cases under their care, and the nursing staff for their willing coöperation.

Summary.

1. The treatment over a period of 108 days of a severe case of diabetes, requiring 75 units of insulin a day, is described.

2. Figures are given illustrating the effect of insulin in diminishing ketosis in diabetes and diabetic coma.

3. Insulin had no effect when given by mouth mixed with sodium bicarbonate or by rectum. When mixed with gum and injected subcutaneously, the absorption was a little delayed and a larger dose was tolerated.

4. Evidence, arising out of the administration of a very large dose of insulin, showed that it causes storage of carbohydrate in some form. When the depôts are full, insulin does not have such a big effect in lowering the blood-sugar. The marked rise in R.Q. with insulin is explained on Dale's hypothesis that insulin also causes carbohydrate to be burned in preference to other foodstuffs, and the fall in oxygen intake is explained by the low specific dynamic action of carbohydrate.

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THE SILHOUETTE RADIOGRAM.

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IN a recent paper entitled "X Ray Prints: A Suggestion,"[1] I endeavoured to show that a display of the outline of the soft parts in X ray prints would not only enhance their instructional value, but would form a more complete clinical record. After trying various methods with this object in view, I have found the following simple process eminently satisfactory. I scratch the X ray negative with a pin, carefully following the skin outline. I then make a print (Fig. 2) and block out the background with Indian ink. Most negatives show a well-defined skin outline.

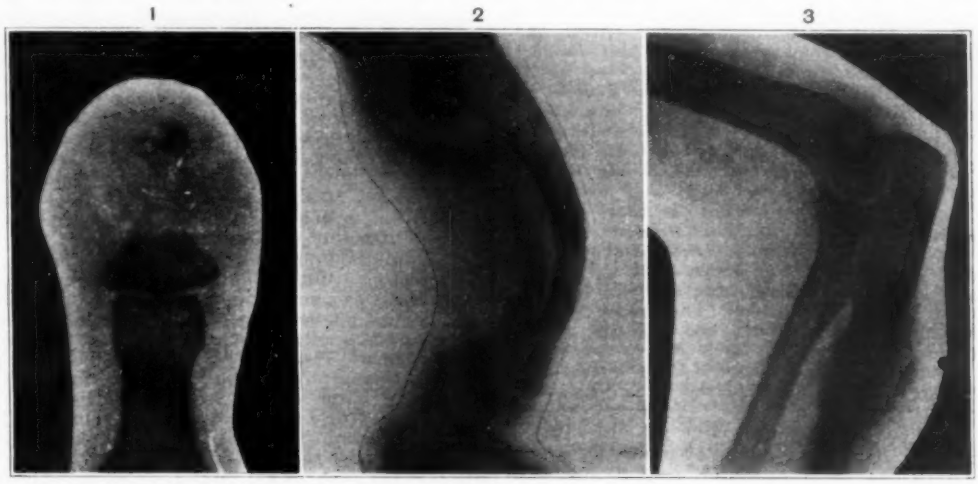

FIG. 1.—Caries of thumb. Note (1) Bone: disorganisation of distal part of terminal phalanx, with abscess cavity in which is sequestrum; and (2) Skin: bulbous end, the result of periosteal whitlow.

FIG. 2.—Rickets, showing characteristic contour and accompanying bony lesion. (Stage 1 of method.)

FIG. 3.—Callus of ulna.

I have further applied this idea to demonstrate the congenital absence of muscles,[2] muscular wasting, the result of bony disease, as in a tuberculous knee, and the relationship of external sinuses to surrounding tissues, the sinus being previously injected with bismuth. Tuberculous dactylitis, periosteal whitlow (Fig. 1), osteitis deformans and rickets (Fig. 2) all show the characteristic contour as well as the accompanying bony lesion. In the case of fractured ulna (Fig. 3) the illustration given shows the relationship of the callus to the surrounding parts, and one is able to assess to what extent the swelling is due to the bone condition, and to what degree to surrounding tissue damage.

The skin outline is instructive in cases of dislocated shoulder, where increased axillary girth (Callaway) and flattening are characteristic features. In cases of Colles' fracture the radial deviation (Fig. 4) and "dinner-fork" deformity are clearly defined. A normal wrist-joint appears in Fig. 5. In fractured patella (Fig. 6) the groove between the fragments is quite obvious.

The actual result is a silhouette skiagram, a combination which has the properties of an X ray plate and a clean cut silhouette, displaying the deformity or otherwise of the soft parts. The ordinary radiogram is largely a silhouette of bone; this is one of bone and flesh. The advantages this has over an ordinary radiogram are: (1) a more striking clinical picture, often rendering a photograph unnecessary; (2) the ease with which it may be obtained; (3) the position in which the limb is photographed is indicated; and (4) the cause of the whole deformity may be analysed at a glance.

FIG. 4.—Colles' fracture. Note (1) Bone: impaction of radius so that styloids of radius and ulna are on the same level: and (2) Skin: radial deviation.

FIG. 5.—Normal wrist-joint.

FIG. 6.—Fracture of patella. Note (1) Bone: transverse fracture due to muscular effort, and upward tilting of lower fragment; (2) Skin: swelling of joint and depression over site of fracture.

I am indebted to Dr. H. B. Scargill and the radiological staff of the General Infirmary at Leeds for the preparation of the prints.

[1] Brit. Jour. Surgery, January, 1923.
[2] Brit. Med. Jour., Feb. 24th, 1923.

RESULTS OF THE SCHICK METHOD

APPLIED TO A FEVER HOSPITAL STAFF.*

BY B. A. PETERS, M.D., B.C. CAMB., D.P.H.,
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DURING the last 18 months all members of the staff of the Bristol City Fever Hospital, Ham Green, have been tested by the Schick method. In half the cases the test toxin was diluted immediately before use. In the other half toxin as diluted by the makers was employed. There appeared to be no appreciable difference in the results, and the makers state that they have found no alteration in the toxic strength through material travelling by post. While many of the results are very distinctly positive or negative, a considerable number of borderland cases arise (at least in adults) in which it is very difficult to decide in which category to include them. Such cases have been called positive in our results. One series of 11 were tested simultaneously with material from different firms on the same day on the same arm. The results with the material from firm A (which was used in all the other patients) were 8 positives and 3 negatives, and with material from firm B, 5 positives and 6 negatives—an alarming disparity.

Results.

In all 212 were tested; 85, or 40 per cent., gave a positive or pseudo-positive reaction, and all these were given two or three doses of toxin antitoxin mixture. They were not allowed in the diphtheria wards until six weeks after the last dose, by which time a fair measure of immunity is stated to have developed. As a counsel of perfection they should be re-tested before contact with diphtheria, but there is a limit to these procedures beyond which it is not wise to press the forbearance of the new staff, as they are all also vaccinated, and some inoculated with T.A.B. vaccine and on occasion with *B. pestis* vaccine! Amongst those who had previous attacks of diphtheria, 18 gave a negative test (one of these had diphtheria twice) and 6 a positive test (one of these had also had two attacks within three years). Amongst the older members of the staff who had been in contact with diphtheria for periods varying from a few months to five and a half years without contracting the disease, 7 gave positive reactions varying from slight to very strong. Amongst those giving negative tests, two developed clinically follicular tonsillitis with a profuse growth of diphtheria bacilli in culture, and three developed a definite clinical attack of diphtheria, including myself, who contracted the disease after 14 years' daily contact with it, and a ward sister who had had eight years' fever nursing. The organism from my own throat killed a guinea-pig in 36 hours and was thus unusually virulent. Amongst those inoculated with toxin antitoxin mixture, two developed diphtheria while being immunised (not then being in contact with known cases of diphtheria), and one two months after completion of immunising course. Therefore 8 in all contracted diphtheria in 18 months—i.e., at the rate of 5 per annum. The numbers attacked in the previous 12 years were, from 1921 backwards: 12, 12, 6, 6, 2, 3, 2, 1, 2, 7, 6, 5—i.e., an average of 5 per annum.

During the period of these observations the incidence of scarlet fever attacks in the same patients is of interest. Out of 127 with negative Schick tests, 5, or 4 per cent., contracted scarlet fever; of the 85 positives 10, or 12 per cent., contracted scarlet fever. This suggests some relationship in the susceptibility to the two diseases and is in accord with the well-known fact that those suffering from scarlet fever are highly susceptible to diphtheria and vice versa, although the numbers are much too small to dogmatise upon. Our results here suggest that the claims for these methods are decidedly exaggerated in the presence of heavy and repeated doses of a virulent type of infection, such as was present in this area during most of the time in which these observations were made.

Conclusions.

Our experience here would suggest: (1) That a negative Schick test does not necessarily indicate clinically immunity to the disease; (2) that a positive Schick does not always indicate a high susceptibility to the disease; (3) that the effects of immunisation do not always prevent the disease. This is in accord with clinical experience, as one has frequently seen second attacks of the disease in the same person. Probably some people give a bad immunising response to infection, and one would not expect any artificial method to give a better immunity than does an actual attack of a disease. No one would claim that vaccination is a better protection against small-pox than an attack of small-pox.

These methods are undoubtedly of considerable value in protecting against the disease, but immunity against any disease can never be absolute, as it must depend on the virulence and size of dose of the infection and the general condition of the patient at the time of infection. Presumably, amongst those exposed to slight and occasional risks of infection, the immunity conferred would be better than under the concentrated fire to which fever hospital staffs are exposed. I think that for these persons it would be better to abolish the test and give them all two or three doses of toxin antitoxin mixture. However, this has the disadvantage of sensitising them to horse serum if they should consequently develop the disease; also the reactions produced by the mixture are sometimes decidedly severe. It would be better for the success of this method that the dogmatic statements claiming its absolute protection should be combated; otherwise occasional disappointment will ensue, followed by the falling into disrepute of the whole procedure. My experience suggests that the method, while constituting a valuable weapon in the combating of diphtheria, has distinct limitations.

I am indebted to Dr. J. A. Nixon for instructing me in the technique of this test and for carrying out some of the earlier tests.

* A paper read before the West of England Branch of the Society of Medical Officers of Health on June 20th, 1923.

PREGNANCY COMPLICATING FIBROIDS IN A PRIMIPARA AGED FORTY-SIX YEARS.

BY A. LOUISE McILROY, M.D., D.SC. GLASG.

(From the Obstetrical and Gynæcological Unit, Royal Free Hospital.)

IT has been found that the occurrence of pregnancy in a patient the subject of fibroids of the uterus is rarely associated with any disastrous effects, except where degenerative changes take place in the tumour substance, or where torsion of the pedicle may accidentally happen. The general rule adopted by most gynæcologists is to refrain from operative interference during the course of the pregnancy unless there is some urgent reason for doing so. If obstruction to labour appears to be inevitable it is advisable to allow the pregnancy to continue to full term, and to deal with the fibroids after Cæsarean section has been performed. Fibroids are seldom found to be a direct source of post-partum hæmorrhage.

Investigations into the causation of these tumours has led me to believe that they constitute one of the chain of symptoms associated with toxæmia, having in the majority of cases its source of infection in the mouth and intestinal canal. Hæmorrhage in non-

pregnant cases is due not to mechanical irritation of the uterine mucosa alone, but to a congestion of the tissues under the influence of a chemical toxin. The uterus is endeavouring to eliminate the poisonous products from the intestine as it is a channel of excretion under normal conditions.

If cases of fibroids are carefully investigated it will be found that there is evidence of toxæmia in the majority of them; this toxæmia is not always consequent upon degenerative changes in the tumours themselves, but rather points to some influence in their origin. The notes of the following case may be of interest owing to the problems involved in the accurate diagnosis of pregnancy and its treatment.

The patient, aged 46, married three years, sterile, had regular menstrual periods until Nov. 8th, 1922, when they ceased. Some weeks later she noticed a swelling in the right iliac region, and consulted her doctor about the middle of December. A diagnosis of fibroids of the uterus was made, and the amenorrhœa was looked upon as a symptom of the onset of the menopause. She was sent up to me for examination and treatment.

Condition on Examination.—When I saw the patient the tumour in the abdomen was easily palpable, tender, and freely movable. The uterus was involved in a mass of fibroid tumours confined mainly to the pelvic area. As there was some softening of a portion of the swelling I hesitated to exclude the possibility of pregnancy, although there were no breast changes present. There was a history of slight sickness, but as the patient showed some evidence of toxæmia it could not be taken as a reliable sign of pregnancy.

I wrote to the doctor explaining my difficulty of diagnosis and asking him to let me see the patient in a few weeks' time. She was admitted to the gynæcological department on Feb. 12th and again examined. The tumour was found to be larger and more tender, and the pelvic mass was also enlarged. There was slight secretion in the left breast, but no definite areola seen. Under anæsthesia a portion of the pelvic mass felt softened like a pregnant uterus, although it was still somewhat difficult to make an accurate diagnosis. The patient complained of pain in the large tumour, and showed evidence of the presence of toxæmia. For this reason I decided to operate, but did not promise to do a hysterectomy, although the patient was anxious not to continue the pregnancy owing to its possible complications.

Operation.—On Feb. 20th the large tumour was easily removed, being pedunculated; it was found to be undergoing necrobiotic degeneration on subsequent incision. The uterus was enlarged and softened to about the size of 12 weeks' pregnancy, and its walls were studded with about a dozen fibroids of varying sizes. Two of the largest of these felt softened and were dissected out from the uterine wall. Although there was considerable hæmorrhage on enucleation of the tumours, and although the uterus was so much involved, I decided to leave the condition alone. The pelvis showed considerable contraction in its antero-posterior diameter.

Course of Case.—There was no interruption of the pregnancy after the operation, and the patient left the hospital well on the twenty-second day. Owing to the patient's age, to the degree of pelvic contraction, and to her now expressed desire to go to full term, she was advised to return for Cæsarean section. Her general condition throughout the remainder of the pregnancy was very much improved. On August 7th she was admitted to the obstetrical department, and next day I performed Cæsarean section before the onset of labour. The placenta was situated on the anterior uterine wall, and there was considerable hæmorrhage from the incision, but the operation was otherwise uncomplicated. Another tumour was excised, but the uterus was not removed as it was thought possible that the tumours would involute. The child was perfectly healthy and weighed 7 lb. 2 oz. at birth. The patient left hospital well on Sept. 3rd, the uterus on examination showing a marked diminution in the size of the tumours.

The interest of the case lies in the occurrence of pregnancy in an elderly primipara with numerous fibroids, and the difficulty of a definite diagnosis in the early weeks. Cæsarean section was indicated on account of the contracted pelvis and the possibility of injury to or obstruction by the tumours in the course of labour, together with the facility for hysterectomy if deemed necessary. The case is one more example of the beneficial results of conservative obstetrics even in the presence of several indications for more radical measures.

Clinical and Laboratory Notes.

A NOTE ON JAW-WINKING.

BY J. ALEXANDER WILSON, M.D. GLASG.

JAW-WINKING is the inelegant term applied to involuntary movements of one or both eyelids that are occasionally associated with movements of the jaw, as in chewing, speaking, or crying. The ætiology of the condition is obscure. Sometimes it is congenital, when it has been called an "atavistic anomaly." Another theory assumes that the "levator palpebrarum, ordinarily supplied by the third nerve, receives in these cases an additional supply from the fifth nerve, which also innervates the muscles of mastication." It is frequently associated with ptosis, or there may be ptosis in one eye and jaw-winking movements in the other.

I have observed a child, obviously a case of ptosis, who was admitted to hospital for operation, crying vigorously whilst it was being prepared for operation. As it cried I observed that the ptosis had disappeared; the lid was drawn right up, exposing the white sclerotic above the cornea. When the child ceased to cry the lid drooped again. Here we have a condition of paralysis alternating with extreme contraction. One case was reported to have followed injury to the child's head—"skull dented in"—and another as being associated with "paresis of the left side of face and body."

The following case is worthy of record:—

The patient is a man aged 50. When he is not speaking or eating his eyes seem exactly alike. The vision in each is good. When he speaks the right upper eyelid falls and covers the eyeball, and when he stops speaking the eyelid is raised into its normal position. When he speaks suddenly or energetically the fall of the lid seems of greater range and is more obvious. When he speaks quietly or languidly the range of movement is less and the abnormality is less obvious. The lid also droops when he eats.

This is an ordinary case of jaw-winking, but the interesting point is its ætiology. Twenty years ago this man was in a railway collision and suffered from shock which kept him in bed for several weeks. He had no obvious injury. Shortly thereafter he noticed this peculiarity of his right eye. He is an intelligent business man, and I have no hesitation in accepting his statement that the collision was in some way responsible for the disordered muscle activity. If this ætiology is accepted the case is interesting from a medico-legal point of view.

In all cases of jaw-winking a voluntary impulse from the cortex cerebri to the fifth nerve initiates an involuntary impulse in a section of the third nerve. In my case, probably, there has been a lesion or displacement of an upper neuron, permitting shunting, or escape of impulse, from the line of the fifth nerve, on to that of the third nerve.

Cambuslang, Glasgow.

A CASE OF DIPHTHERIA OF THE BIG TOE.

BY E. EMRYS-ROBERTS, M.D.,
PROFESSOR OF PATHOLOGY AND BACTERIOLOGY, WELSH NATIONAL SCHOOL OF MEDICINE.

THE following case-record presents certain points of interest in diagnosis and treatment:—

The patient, a youth aged 22, who enjoyed excellent health, developed a blister at the base of the right big toe after a game of football. When the blister burst the site became ulcerated, and this was quickly followed by swelling of the foot and enlargement of the femoral lymphatic glands. He felt out of sorts and "shivery." In spite of vigorous local treatment the foot remained swollen and the ulcerated area unreduced in size for the succeeding five weeks. Towards the end of this period he began to feel giddy and to suffer from double vision and inability to read. He also about this time began to experience trembling and weakness at the knees, some difficulty in walking, and numbness in hands and feet.

Condition on Examination.—Eight weeks after the receipt of the injury the swelling of the right foot had gone down,

but there was present an indolent ulcer on the anterior and outer side of the base of the right hallux, forming a sort of half-collar about one-third of an inch in width, with a slight colourless discharge. Complete analgesia existed over the soles of both feet and over the lower half of each leg posteriorly. There was definite weakness of extension and flexion, especially the latter, at the knee-joints, but no paresis of the muscles operating at the ankle-joints or toes. The right grip was weak and there was some wasting of the muscles of the hand. Definite, but incomplete, analgesia was present over both hands and over the cheeks and nose. All the deep reflexes of both arms were lost, as were also the Achilles jerks. The knee-jerks were feeble and only obtained on reinforcement. Both sixth nerves were affected, and there was limitation of movement and diplopia on attempted lateral deviation of the eyes. He could not see ordinary print, but distance vision was good. The pupils reacted to light, and the discs were normal. Though speech was slightly nasal, there was no regurgitation and no difficulty in swallowing. Furthermore, there was no obvious involvement either of the myocardium or of the respiratory muscles.

Course of Case.—In the absence of any history of sore-throat the polyneuritis was considered to be definitely related to the condition present in the big toe. Both in direct smears and in cultures obtained from the ulcerated area the Klebs-Löffler bacillus was readily identified, and immediate treatment with antitoxin was followed within 48 hours by distinct amelioration of the symptoms. Although the wound was, additionally, heavily infected with *Staphylococcus aureus*, healing started at once and, in a few days, newly-formed epithelium covered the site of the ulcer. During the four months up to the time of writing the improvement has been consistently progressive and now, although there yet remains some wasting and loss of power in the right hand, the patient is practically fully restored to healthy activity. The source of infection has completely eluded detection, in spite of the efforts directed to this end by the patient's father, a medical man.

Although cases of "wound diphtheria" are reported from time to time, the occurrence of a diphtheritic lesion limited to the site of the wound and unrelated to any obvious source of infection is uncommon. Nevertheless, the possibility of this form of diphtheria is to be borne in mind whenever a wound, for no clear reason, betrays a tendency to resist all forms of local treatment, since this obstinacy was essentially, in the case here recorded, the first indication of infection by the Klebs-Löffler bacillus.

For the history and notes I am indebted to Dr. Alfred Howell, who saw the case in consultation.

Cardiff.

Reviews and Notices of Books.

A SYSTEM OF SURGERY.

Second edition. Edited by C. C. CHOYCE, C.M.G., C.B.E., B.Sc., M.D., F.R.C.S., Director of Surgical Unit, University College Hospital Medical School, Surgeon to University College Hospital, Consulting Surgeon to the Seamen's Hospital, Greenwich. London: Cassell and Company. In three volumes. Pp. 1013, 1056, 1176. £6 the set.

THE second edition of Choyce's excellent "System of Surgery" has been long overdue, owing, as the editor explains in his preface, to the war and its subsequent disturbances. There have been certain changes throughout the course of the work, some of the chapters have been re-written by new authors, and others have been revised. The war was bound to be responsible for certain additions to this edition, but we are glad to see that only the real advances in surgical knowledge and technique have been included. Many methods of great value in war conditions are entirely out of place in civilian work, and the editor has been happy in his choice of what to leave out. Certain chapters have been entirely rewritten; X ray diagnosis now falls to Mr. Magnus Redding, and he has produced a chapter which ranks amongst the finest in the work. He has given us many admirable radiographs, and is well abreast of modern improvements and discusses ably such recent methods as pneumo-peritoneum and ventriculography. Colonel L. W. Harrison contributes an authoritative and lucid chapter on syphilis. Colonel J. W. West has rewritten the chapter on tetanus. In view of the amount of material provided by the late war his article is disappointing. The typical form of tetanus is well described, but its unusual forms are only very briefly dismissed. The chapter on the pharynx, larynx, and ear is rewritten by Mr. Norman Patterson, and gives a description of the diseases of these regions which a general surgeon will find of value. Orthopædic surgery has been taken over by Mr. W. H. Trethowan, and he has effected a great improvement in one of the weaker chapters of the first edition.

There are noticeable changes in arrangement, and the chapter on military surgery is rightly abandoned, for, as the editor points out, military surgery is a branch of its own and requires its own literature. There are two entirely new chapters, one by Prof. C. A. Pannett on simple ulcers, and another by Mr. E. K. Martin on toxæmia, septicæmia, and pyæmia. Mr. W. H. Clayton-Greene adds to his admirable chapter on diseases of the tongue his experiences of the use of diathermy in carcinomata of the mouth and tongue; Mr. C. A. R. Nitch has given an excellent account of gas gangrene; in addition there are added to appropriate chapters descriptions of methods of blood transfusion, the paraffin dressing of burns, the surgical types of splenomegaly, and a fuller discussion of arteriovenous aneurysms,

In places there are but few alterations, and sometimes too few. For instance, in the chapter on the intestines not quite a page is given to diverticulitis under the heading Diverticula of the Colon; later (p. 527) a section on fibromatosis of the colon occurs and is described as a clinical entity, which is said to produce a condition of false diverticula, whereas we now know that chronic diverticulitis is the cause of the fibromatosis. It is impossible to obtain an equal level throughout such a work as this. Overlapping must always occur, and it is not uncommon to find that in the desire to avoid it certain subjects are treated most cursorily; in this book, for example, subphrenic abscess is scurvily treated. Two varieties are mentioned in the chapter on diseases of the stomach as being complications of perforated ulcers. Later on in another chapter the subject is again introduced, but no attempt whatsoever is made to present it as a whole in a lucid fashion, and since Barnard's classification this is hardly excusable.

These, however, are but blemishes, and this "System of Surgery" remains, in our opinion, one of the best text-books of surgery in this country. It is very well printed in large clear type, the illustrations are numerous and excellent, the greater proportion of the microscopic preparations are drawn, not photographed, and the book is well arranged throughout. It covers a wide field, for it appears to be the work of choice among students for the Conjoint Board examination as well as for the Final Fellowship, and indeed may safely be used as a book of reference for any member of the profession settled in surgical or general practice. There are certain articles which in themselves make the work worth buying. Mr. Wilfred Trotter's chapter on the scalp, skull, and brain contains the most brilliant exposition of intracranial injuries in the English language; not only is his subject matter excellent, but his article is written in such delightful style that it is a constantly recurring pleasure to read it through. Mr. J. Sherren has supplied two fine articles, one in Vol. II. on the stomach and duodenum, and the other in Vol. III. on the surgery of nerves, subjects which he has made very particularly his own. That this second edition will have a wide welcome we have no doubt.

ASTHMA.

By FRANK COKE, F.R.C.S. Bristol: John Wright and Sons, Ltd. 1923. Pp. 260. 15*s*.

TO write a book on asthma at the present time is an unenviable task. The prominence rightly given of recent years to "sensitisation to foreign proteins,"

as a factor in the ætiology of asthma, makes it fairly clear what must be the main theme of any work on asthma. However, when we try to go a little deeper into this subject, we are at once involved in uncertainty and controversy.

Mr. Coke speaks somewhat dogmatically on the specificity of hypersensitiveness to particular proteins and compares the results to anaphylaxis; unfortunately, he makes no mention of Storm van Leeuwen's recent work, which suggests that the specificity is by no means so great as is generally believed, and that the vast majority of hypersensitive patients give a marked cutaneous reaction to human dandruff. This divergence of views on a fundamental point illustrates the difficulty of the subject. Undoubtedly the clinical part of the book is far the most satisfactory, for here the author is describing his own experiences. There is an excellent coloured illustration showing types of skin reaction and the technique employed by the author is clearly described. Out of 350 cases of asthma he finds a positive reaction in 52 per cent. This is about the same proportion as that found by Chandler Walker, but is much higher than most people in this country are inclined to admit. The prevention and treatment of asthma is very fully considered, both during the acute attack and in the intervals between them. This takes up rather more than a third of the book. The account is sensible and impartial, and the classification is good. There are one or two small points that may be mentioned. The value of oxygen when given in sufficient quantity by means of an efficient apparatus is not sufficiently emphasised, and we have looked in vain for some reference to the old experiments on treatment with compressed air. No mention is made of tuberculin in the section on non-specific protein therapy, though valuable results have been obtained in cases where there was no evidence of tubercle. The author himself believes firmly in the mixed coliform vaccines of Danysz. The account of the structure of the lung given on p. 71 is not now generally accepted—the truer picture being that which we owe to Miller (*Jour. Morphol.*, xxiv., 449, 1913). The problem of sensitisation to drugs is mentioned. From the theoretical point of view this subject is of great importance, since people may be hypersensitive to substances other than proteins. The hæmoclasic crisis is also described. The references at the end of the chapters show that the author has read widely.

Mr. Coke has given us an interesting and readable book. We note that, but for his untimely death, Dr. A. Latham would have collaborated in the work, and the author hopes that the book will add its small quota in the perpetuation of his memory.

DISEASES OF THE BREAST.

By WILLMOTT H. EVANS, M.D., B.S., B.Sc., F.R.C.S., Consulting Surgeon to the Royal Free Hospital. London: The University of London Press, Ltd. 1923. With 106 illustrations (15 coloured). Pp. 495. 27*s.* 6*d.*

IN publishing a work on the Diseases of the Breast Mr. Willmott Evans enters a field which has already been well tilled, but the success which has attended his enterprise more than justifies it. There is always room for the book which is a record of personal experience; and when, as here, it is enriched by a painstaking and critical study of the literature, its position is immediately established. Mr. Evans treats his subject systematically. The first two chapters deal with anatomy and physiology, and methods of examination. Then, following sections on abnormalities of development, atrophy, and hypertrophy, the inflammatory conditions are described in detail; while the last two-thirds of the volume are devoted to the innocent and malignant neoplasms. The book is clearly written and admirably illustrated by drawings of subjects and naked-eye specimens; microscopic pathology receives less attention. It is thoroughly practical and more space is devoted to treatment than in many text-books.

For the most part the author's views are modern and orthodox, though he differs from accepted teaching in some particulars. He is inclined to ascribe chronic interstitial mastitis to some form of autotoxæmia, and he is a believer in the parasitic theory of the origin of cancer. Again, he advises removal of the supraclavicular glands in the complete operation for carcinoma, though it is generally believed that if these glands are infected the case is practically inoperable, and where possible he dispenses with any form of drainage of the wound. But though the author holds definite views, they represent reasoned and logical opinions and not prejudices. The book is worthy of study, and will appeal to the student and the general practitioner alike.

GONORRHŒA.

By DAVID THOMSON, O.B.E., M.B., D.P.H. With contributions by DAVID LEES, D.S.O., M.D., F.R.C.S.E.; CLAUDE H. MILLS, M.R.C.S., L.R.C.P.; ROBERT THOMSON, M.B., Ch.B.; and KENNETH MACLACHLAN, M.B., Ch.B. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 519. £2 2*s.*

Dr. David Thomson, whose long and painstaking researches into the bacteriology of gonorrhœa are well known, is responsible for the large part of this book dealing with the bacteriology and immunity. He has dealt exhaustively with the subject, and while most of the matter set down has already appeared under his name in medical journals it is convenient to have the whole subject dealt with in one volume. While the bacteriological problems are mainly of interest to workers in laboratories, the clinician will profit from a clear understanding of the issues involved, and will be glad to have the pathological side of the subject fully set out. The rest of the work deals adequately with the anatomy and pathology and treatment of gonorrhœa. Among these chapters, which are all good, we would specially commend that on Infection, Incubation, and Abortive Treatment, by Dr. C. H. Mills. The matter is admirably presented and gives evidence of long experience, soundly observed and recorded. The section by Dr. Lees dealing with the clinical manifestations and practical modern treatment is concisely written and comprehensive.

The volume is well printed and produced.

LESSONS IN PATHOLOGICAL HISTOLOGY.

By GUSTAVE ROUSSY and IVAN BERTRAND. Translated from the Second French edition by JOSEPH MCFARLAND, M.D., Sc.D., Professor of Pathology and Bacteriology, University of Pennsylvania. London: Constable and Co., Ltd. 1923. Pp. 278. 16*s.*

FEW subjects are so difficult to teach and to learn as morbid histology. The morbid anatomist can demonstrate an actual lesion to his class of students with the reasonable certainty that each one of them sees what he himself sees. But in morbid histology the microscope intervenes between the teacher and the taught, and except with the simplest objects there may be the greatest difficulty in arriving at a basis of common understanding. With demonstrating eye-pieces and some form of projection apparatus teaching may be rendered less laborious, but these accessories of the class-room cannot help the student in his private reading; he must still puzzle out his microscopic preparations as best he can with the aid of a text-book. In "Lessons in Pathological Histology," by Drs. Roussy and Bertrand, the subject is treated more clearly and satisfactorily than in any text-book with which we are acquainted. The book makes no pretence of being a complete treatise on morbid histology, though it is comprehensive in scope and contains a surprising amount of information. The illustrations are from drawings of microscopic preparations, and though a few of them have suffered somewhat in reproduction, they are well chosen and fulfil their purpose most admirably. In some cases a low-power view of the

section is supplemented by a high-power view of one or more portions, and each drawing is labelled very completely. Each figure is accompanied by a page of text describing clearly how the sections should be studied. First the diagnosis of the organ is discussed, then that of the lesion, and the conclusions to be drawn are summed up fairly and accurately.

The general practitioner will find this book a most useful help in the interpretation of such preparations as he may have made from his cases, while to the student who reads with its aid, morbid histology should cease to be what it too often is, an incomprehensible subject in which there is neither beginning nor end. Instead of being tempted to learn a few selected slides by heart, relying on his powers of "spotting" to pull him through in times of stress, he will acquire the habit of regarding a microscopic preparation as a problem to be solved by the ordinary processes of logical reasoning, and he will collect at the same time enough actual knowledge to satisfy all his requirements.

LIFE MOVEMENTS IN PLANTS.

By Sir JAGADIS CHUNDER BOSE. Transactions of the Bose Institute. Vols. III. and IV., 1920–1921, pp. 599–902. London and Calcutta: Longmans Green and Co. 1923. 20*s*.

THIS volume contains a further series of investigations made in the Bose Institute in Calcutta by Sir Chunder Bose and his collaborators into the sensitivity and responses of plant tissues to stimuli. They are notable for the continued use and further elaboration of methods of measurement and record of a wonderful degree of delicacy which might well find applications in other experimental fields. The papers mostly deal with highly technical questions of plant irritability, and the last chapter gives a useful review and summary of the first five volumes of the Transactions of the Institute. There is also a paper of more general interest on methods of control of the water-hyacinth (*Eichornia*), a plant which grows so exuberantly when it gets to a new country that it has become a serious obstruction to navigation, water-supplies, &c., in India as it has in America and Australia.

CHAMBERS'S ENCYCLOPÆDIA.

A Dictionary of Universal Knowledge. New edition. Edited by DAVID PATRICK, M.A., LL.D., and WILLIAM GEDDIE, M.A., B.Sc. London and Edinburgh: W. R. Chambers. Vol. I., 824 pp.; Vol. II., 840 pp. In ten volumes. £10.

THOSE of us who learned to read from the bold letters which indicate the scope of each volume of Chambers's Encyclopædia retain for this work an affection which may be said to survive succeeding editions rather than to grow with their issue. The change from the A to BEA, BEA to CATA, on the first and second volumes of the 1888 edition familiar to our childhood, to the A to BEATTY, BEAU to CATA on those of the present edition seems unnecessary and meaningless to our jealous eye, though the prominence given to the name of the gallant admiral whose brief biography ends Vol. I. may be taken as an indication of the efforts made to bring the encyclopædia up to date. It must be admitted that these efforts have been somewhat spasmodic and uneven; for example, the article on boils and that on cataract, which include notes on treatment, appear to have suffered no revision since 1888, while the reader who desires a brief account of modern biochemistry is referred back to an article on animal chemistry which cannot but disappoint him. We need not further discuss the medical articles, however, for it is not to a general encyclopædia that an expert will turn for up-to-date information on his specialty. Subjects connected with or radically altered by the war are well treated. In certain places where articles have been brought well up to date the bibliography has escaped attention. These criticisms having been made, it remains to record the pleasure with which we greet our old friend, rejuvenated, on the whole, skilfully enough. For a moderate price a man who invests in this encyclopædia provides himself with sound information on almost any subject that may interest him, while if he makes full use of cross-references, there is no limit to the knowledge he may acquire with little effort. It is these qualities of simplicity and conciseness that have characterised previous editions of this work and account for their popularity. We anticipate for this edition an even wider public.

FASTING AND UNDERNUTRITION.

By SERGIUS MORGULIS, Professor of Biochemistry, University of Nebraska College of Medicine. New York: E. P. Dutton and Company. 1923. Pp. 407. $5.00.

THE experimental study of starvation has long been a favourite method of approaching nutritional problems. In fact, as the author points out, fasting as a method of investigation has been not infrequently used without full appreciation of the phenomena of fasting. We believe that the present volume will find an important place in the literature of nutrition, because it supplies this need for a separate study of the phenomena of inanition. The author's objects have been, in the first place, to collect and classify what is known about the subject, and in the second place to consider these facts in their proper biological setting. The subject is considered from every aspect and the book is divided naturally into five parts, of which the first treats of physiological inanition, as seen in hibernation, metamorphosis, and such special cases as the breeding salmon; the second deals with the chemical, physiological, and morphological phenomena of experimental inanition, acute, partial, chronic, and intermittent; the third part is concerned with the relation between inanition and growth. An introduction and a very valuable bibliography complete this useful volume.

In order to make the book quite complete, the author has introduced chapters on water, oxygen, and vitamin starvation; these special subjects perhaps fall a little outside the proper scope of the work, especially the one on oxygen starvation, which is really superfluous. Otherwise we have nothing but commendation for the author's achievement.

ADVICE TO CONSUMPTIVES.

Recovery Record for Use in Tuberculosis. By GERALD B. WEBB, M.D., and CHARLES T. RYDER, M.D. New York: Paul B. Hoeber, Inc. 1923. Pp. 79 and Tables. $2.00.

THIS is a most excellent production. No other book, with the exception of Dr. Lawrason Brown's "Rules for Recovery," has yet been published of such value to the tuberculous patient. About half the book consists of chart sheets, enough space being given to allow the patient to record his temperature, pulse, and weight continuously for two years. The very fact that provision has been made for a two-year record must bring conviction to the patient that the duration of his disease is not a matter only of months. Above and below each chart there is a philosophical or instructive quotation. Shakespeare, Ecclesiastes, Dante, Epictetus, Homer, Marshal Foch, and many other sources have been tapped, and Foch's dictum, "I involuntarily turn my back on disaster," is a suitable pendant to Trudeau's famous rule "Conquer Fate by acquiescence." The authors' advice is the product of 25 years' experience, and it is evident that they have spent these years in the study of the patient as well as of the disease. The distinction they draw between idleness and laziness is subtle but happy. "Idleness is merely doing nothing; laziness is doing nothing with contentment and gusto, and whoever achieves this will almost certainly recover." With regard to false recoveries, they quote the famous Irishman who said: "Many an over-confident patient has died cured." Several useful hints are given as to the cultivation of hobbies and avocations, and

the patient is told never to stand when he can sit, nor to sit when he can lie down. Many a man has made important advances in the knowledge of his calling, of literature and of truth while confined to his bed or chair, and the authors' chief lesson is that life may be made even fuller than before if the patient adjusts himself to new conditions. "Do not forget that of all the countless remedies proposed, rest alone has stood the test of time." The quotations in support of this teaching are innumerable, and it is sufficient to refer to Trudeau's: "I know I have hurt nobody by rest, but I am quite sure I often have by allowing them to exercise." The authors recommend patients to take fresh air externally, internally, and eternally, and to the patient who worries they suggest that a definite time be set aside in which to get all the worrying done for the day. As for risk of infection, the opinion is expressed that a healthy adult incurs less risk in living with a tuberculous patient than in riding down town in an automobile. One more quotation: "There is no such school of character as tuberculosis bravely met and rightly faced" (Minor).

The reader, who has absorbed the philosophy of this both spirited and spiritual work, is well equipped to meet disaster, whether it come in the guise of tuberculosis or any other disease.

JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol. XX. July–September.—Dr. G. W. Ronaldson, in his Glasgow M.D. thesis entitled Serum Phenomena and Their Relationship to the Prognosis of Diphtheria, and based on the study of 1000 cases of diphtheria, points out that the prognostic importance of serum phenomena in diphtheria, which was first emphasised by J. D. Rolleston in 1904, has not received the attention it deserves. Increased dosage of diphtheria antitoxin raises the incidence of serum manifestations, but diphtheria toxin exercises an inhibitory influence both in their frequency and intensity. In very severe cases the serum rash is late in development, scanty, or entirely absent. The presence of a rash even of a most limited nature is a favourable sign, while a well-marked urticarial eruption is an excellent prognostic. The occurrence of a secondary rash which is often accompanied by pyrexia and joint pains is a still more favourable sign, a severe type of paralysis being very unusual in such cases.—In a Clinical Study of Muscle Tone in Rickets, Dr. J. Douglas Galbraith maintains that the radiographic and clinical pictures in rickets whilst showing general agreement often present marked differences. The variation of calcium metabolism under different conditions, so far as ossification can be accepted as an index of calcium metabolism, suggests that the disturbance of this metabolism may be an accompaniment of rickets rather than the primary change. Dr. Galbraith emphasises the striking loss of muscle tone in rickets and brings forward clinical evidence to show that the disease may involve the muscles as well as the bones. He regards the condition of the muscles as a truer index of improvement than the radiographic picture. Once the muscle tone has increased the child improves both in ability to walk and in general health, no matter what the radiographic appearances may be. Bad hygienic conditions, especially confinement in a moist atmosphere loaded with the products of respiration, and an absence of moving air and sunlight, depress muscle activity and thereby are strongly predisposing factors in the development of rickets.—Mr. A. Ralph Thompson describes a case of Epispadias Associated with Complete Incontinence Treated by Rectus Transplantation, in a girl aged 5 years, the principle of the operation being as follows: The right rectus muscle is divided just below or at the level of the umbilicus, split and turned downwards, the split ends being placed in a dry wound which is made around the orifice of the "urethra" in the male and around the whole vulvar orifice in the female. The distal ends of the split muscle are united to each other, so that a sort of sphincter urethræ is formed. Mr. Thompson objects to the method of transplantation of both recti on the following grounds: (1) It will prolong the operation; (2) if for any reason it should fail, transplantation of the ureters alone remains, whereas if the transplantation of a single rectus should fail, the other one may be brought down before ureteric transplantation is employed.—Dr. Angelica Panayotatou, of Alexandria, gives an account of Twenty-five Cases of Whooping-cough Treated by Injections of Ether. All the cases were cured in 12–15 days from the beginning of treatment by intramuscular injections of ether in doses of 2 c.cm. every second day. The rapid recovery was all the more remarkable as the patients were poor working-class children of feeble constitution and poor organic resistance.—The abstracts from current literature are devoted to tuberculosis.

New Inventions.

A CLOSED DROP ETHER INHALER.

THE drawback to the closed ether inhalers on the market is that it is very difficult or impossible to avoid giving too much ether, especially if one attempts to maintain anæsthesia with them. I have designed an apparatus, shown in the illustration, which is a

modification of the one described by Dr. Paluel J. Flagg. It possesses the following advantages: 1. The apparatus is light and can be used with the patient's head in any position. 2. The ether container holds just over three ounces, which is sufficient for an hour or an hour and a half's anæsthesia including induction, depending on the type of patient. 3. The level of ether in the container, which is made of metal, can easily be read from a protected glass gauge. 4. The ether drops on to a spiral roll of silver-plated fine copper gauze; as it drops it can be seen falling behind a glass window. The rate at which the ether drops is controlled by a thumb-screw on the top of the container. 5. The spiral roll of silver-plated copper gauze is rolled in the long axis of the tube connecting the mouth-piece to the bag and in no way impedes the free passage of the patient's respirations. 6. The tube connecting the mask to the bag is of wide bore, thus permitting perfectly free breathing. 7. Just in front of the gauze roll is the entrance pipe for gas or oxygen as desired, so that the patient gets the gas without it having to pass over the gauze. 8. Also in front of the gauze is the entrance to the pipe leading into the bag through which ethyl chloride may be injected. 9. Between the gauze and the bag is a valve opening into the air, which valve may be opened to a greater or less extent as desired, so preventing the CO_2 concentration in the bag rising too high. This valve being on the under side allows

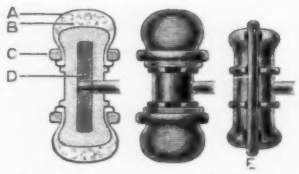
moisture and excess of ether, should it occur, to escape. 10. The bag is very easily removed for rinsing purposes, has a wide neck, and is of one gallon size. I would strongly recommend that anyone using the apparatus should be thoroughly familiar with the closed ether technique.

The apparatus is made by Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, London, W. 1.

F. P. DE CAUX, L.R.C.P. Lond., M.R.C.S.

THE "UNIVERSAL" PERCUSSION HAMMER.

THE illustration shows a percussion hammer which is capable of several adjustments, thus enabling it to be employed for a number of different purposes in the clinical examination of the lungs, heart, and



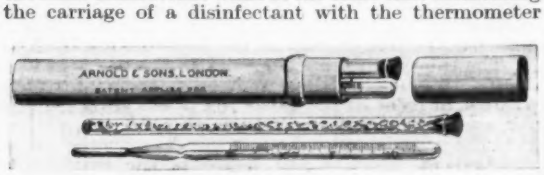
A, Rubber cap. B, Cotton-wool. C, Rubber ring. D, Metal core. E, Larger rubber ring.

nervous system. It is claimed that it can be used in ordinary percussion instead of the finger or rigid plessor. By means of rubber caps and rings, the striking surface can be changed from a hard to a softer, slightly yielding form, more closely simulating the finger. The handle is flexible and thus enables the force of the percussion to be varied easily and the blow made to be short and rapid rather than sustained. It can also be used in the testing of reflexes, and here again the adjustable character of the part used for striking is an advantage—e.g., when one extremity is padded, it may be conveniently used to elicit the jaw reflex, the wrist- and elbow-jerks. The free extremity of the handle is pointed and rounded, thus permitting it to be used in testing the plantar and the superficial reflexes. A further use to which this instrument may be applied is in testing for thermo-anæsthesia, since pledgets of cotton-wool, wetted with hot and cold water respectively, may be placed under the rubber caps at the ends of the hammer and thus applied to the skin.

We have tested this instrument and found that it is useful for the purposes mentioned and that it justifies the claims put forward for it. It is supplied in a small neat case by Messrs. Down Bros., Ltd., 21 and 23, St. Thomas's-street, London, S.E. 1.

ASEPTIC CLINICAL THERMOMETER CASE.

THE illustration shows an improved thermometer case which I have had in use for nearly 12 months, and which I find acts perfectly. Clinical thermometer cases are known which are adapted to contain disinfectants; my object is to avoid the repeated use of the same disinfectant while at the same time facilitating the carriage of a disinfectant with the thermometer

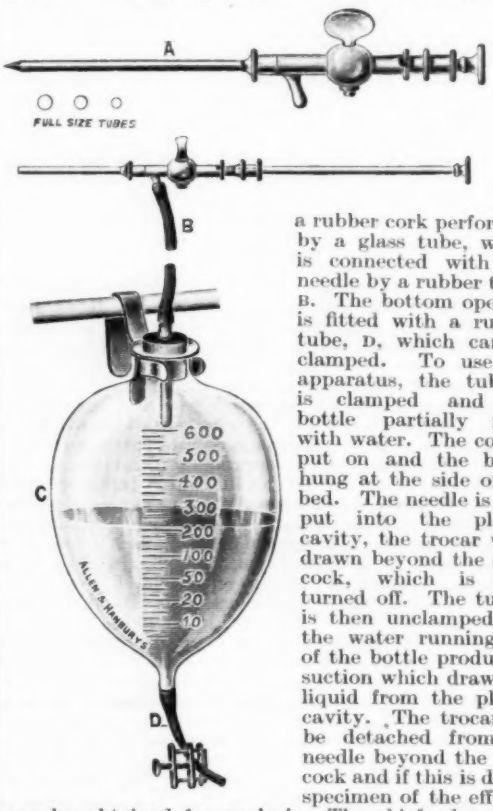


case, so that it is always ready to hand. The thermometer case shown has two compartments, one for the thermometer, the other being fitted with a glass tube in which permanganate of potash crystals or any other suitable solid disinfectant may be carried; this tube has a small hole at the lower end. When required the tube is removed and a few crystals of disinfectant are shaken into a glass of water to form a solution in which the thermometer is immersed. This allows the thermometer to be disinfected by the bedside of the patient.

The makers are Messrs. Arnold and Sons, 50–52, Wigmore-street, W. 1. CHARLES PENTLAND, M.D.

AN IMPROVED ASPIRATOR.

THE aspirator here illustrated consists of a Potain trocar and cannula, A (made in three sizes), and a bottle, C. The top opening in the bottle is fitted with



a rubber cork perforated by a glass tube, which is connected with the needle by a rubber tube, B. The bottom opening is fitted with a rubber tube, D, which can be clamped. To use the apparatus, the tube D is clamped and the bottle partially filled with water. The cork is put on and the bottle hung at the side of the bed. The needle is then put into the pleural cavity, the trocar withdrawn beyond the stop-cock, which is then turned off. The tube D is then unclamped and the water running out of the bottle produces a suction which draws the liquid from the pleural cavity. The trocar can be detached from the needle beyond the stop-cock and if this is done a specimen of the effusion can be obtained for analysis. The chief advantages claimed for the apparatus are: 1. It is simple and inexpensive. 2. The physician does not have to occupy himself with pumps, &c. When once started it works itself, and it is quite easy to do a gas replacement single-handed. 3. The flow of the liquid is even. During a gas replacement it is possible to keep the intrapleural pressure absolutely constant throughout.

The apparatus can be obtained from Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, W. 1.

L. S. T. BURRELL, M.D., M.R.C.P.

A NEW INHALER FOR OBSTETRIC WORK.

Dr. P. A. Mansfield, of Sevenoaks, calls our attention to an apparatus which he has been using for the last three years and for which he claims that the maximum effect is obtained from the minimum dose of chloroform. It consists of a face-piece with an expiratory valve and an air port for safety during deep breathing. The construction of the chloroform bottle is such that the inspiratory effort of the patient sucks air through the chloroform. The two pieces of the apparatus are joined together by flexible rubber tubing.

THE LANCET.

LONDON: SATURDAY, OCTOBER 6, 1923.

OURSELVES.

WITH this issue we enter our 101st year, and the occasion has been taken to give a sketch of the history of THE LANCET, from which, it is hoped, an estimate may be made of the aims which have been before the paper since its foundation, and the degree of accomplishment attained to. We record now our deep gratitude to those who have permitted us to publish their congratulatory messages; it is our earnest hope that future work will in some proportion justify our pride in such testimony.

BIOCHEMISTRY AND MEDICINE.

PERHAPS no subject has advanced so rapidly during the last 10 years as biochemistry. It was formerly regarded by the clinician as an academic subject, interesting to the physiologist and pathologist, but quite outside the range of practical medicine. Scarcely any English hospital possessed a separate department for the chemical investigation of its patients, while the chemical investigations made were performed in side rooms attached to the wards or else in some small room or unused corner of the pathological department. The examinations were restricted almost entirely to urine, and were done by the physicians themselves, their clinical clerks, or some junior member of the pathological staff who was looking forward to the time when he could give up an irksome duty. To-day the conditions have completely changed: every hospital of any size at all has a chemical pathologist, with a separate department to himself. In Canada and the United States the biochemical department of the hospital is quite as large and important as the pathological institute, and it plays just as important a part in the diagnostic and therapeutic side of medicine as the X ray department.

What has caused the sudden growth of biochemistry and its adoption by medicine? The pioneer work was undoubtedly done by such workers as EMIL FISCHER, HAMMERSTEN, and ABDERHALDEN, but in Germany the subject was pursued more on purely chemical lines. The workers themselves were primarily organic chemists, and not medical men. America was the first to employ chemical methods as a routine in the investigation of patients, and for this work men were employed who were primarily medical, but with special chemical training. Perhaps this forms a clue to the question as to what was the stimulus resulting in the rapid growth of biochemistry in medicine. F. M ALLEN'S monumental work on diabetes mellitus may have been that stimulus. His investigations showed clearly the value of working out each patient's metabolism, and clinicians all over the world were quick to adopt his methods. Quantitative estimation of the urinary sugar was combined with a careful consideration of the chemical constituents and the calorie value of the patient's diet. This technique seems to have been the first to demonstrate the practical value of careful biochemical investigation in the patient's treatment. At the time of its introduction blood-sugar estimations were very difficult, and in most cases quite outside the range of practicability. Large quantities of blood were required for a single determination, and the technique was elaborate and intricate. The want of accurate and moderately simple methods of sugar analysis brought home the need for reliable systems of blood analysis: the response was soon forthcoming in the form of Prof. OTTO FOLIN'S excellent methods. Using his system it is possible to determine urea, non-protein nitrogen, uric acid, amino-acid nitrogen, sugar, creatinin, and chlorides on 10 c.cm. of blood in a very short time. The technique is so simple that an unqualified laboratory assistant in constant practice can be trained to carry out the routine analyses. Many other systems of analysis could be quoted, such as BENEDICT'S or MEYER'S, all possessing special virtues of their own.

If it is granted that diabetes mellitus formed the original stimulus for the development of medical biochemistry, it is certain that the same disease has been responsible for reinforcing its position in modern medicine. The advent of insulin therapy has clearly demonstrated the value of this subject, and it might not be going too far to state that insulin could never have been discovered without the aid of some accurate methods of micro-chemical blood analysis. After all, the value of insulin is manifest by its immediate action on the blood-sugar, the urinary changes being apparent only after some time. Without blood-sugar determinations standardisation of the preparation would be impossible. Over 10 years ago RENNIE experimented with extracts made from the principal islet of certain teleostean fishes, and was able to demonstrate certain effects on the metabolism of the diabetic patient. One wonders what success he would have had if there had been some simple clinical method of estimating blood-sugar at the time. This worker's position can be realised by imagining insulin therapy without blood-sugar determinations. With urinary sugar alone available as a means of judging the result of treatment many disasters would occur. The treatment of diabetes has always been a problem to medical men, and admittedly insulin has, to a certain extent, made it a more difficult one. In the compendium of experiences on insulin medication summarised in THE LANCET last week is an account of observations on 161 patients by ALLEN and SHERRILL, who conclude, with obvious justification, that "insulin has tremendously improved diabetic treatment, but has not simplified it." The elaborate controls required in the treatment of the refractory case described by workers in the Medical Investigation Department of Guy's Hospital (see p. 777) are another example of the intricacies of the relations between diet, blood-sugar, urinary sugar, and insulin dosage. Matters proceed quite smoothly whilst the patient is in hospital, for here he can command the attention of people qualified to administer his doses of insulin and to perform the necessary analyses, but when he leaves matters are very different. His medical adviser can administer the daily dose of insulin, but what about the blood-sugar determinations? With a case that has been worked out in hospital, the practitioner's task is fairly simple, since he need only administer the dose advised as a result of this investigation, and provided that there is always a trace of sugar in the urine all will be well. The real problem is presented by the case coming to the practitioner for the first time with bad glycosuria, and refuses for one

reason or another to go into hospital. Again, a case verging on coma may be encountered.

It is impossible to commence insulin therapy without a knowledge of the blood-sugar content at the outset. It has been stated that the practitioner can himself estimate the sugar in the blood, and sets of apparatus are on the market for the purpose at quite low figures. During the last six months a large number of medical practitioners have visited chemical pathologists asking for advice and tuition on the method most suited to their needs. Speaking generally, two methods are open to them: the volumetric method of MACLEAN or the colorimetric method of FOLIN. The former is cheap in the way of necessary apparatus, but requires a great deal of skill, whilst the latter is easy but expensive. A good colorimeter is an absolute essential to FOLIN'S method, and this may cost anything in the region of £30. Choice falls usually on the first method, but too often, after a short period in the laboratory learning the technique, the attempt is abandoned. For the most part the busy doctor cannot give the necessary time, and therefore cannot obtain reasonable results. It is impossible to become a chemical pathologist after a few days' training. For the solution of a difficult position there are two possibilities. The first is the one adopted by the United States and Canada. There every patient undergoes a preliminary course of treatment in hospital where his dose of insulin and diet are worked out. During this time the patient is taught about his disease, how to test his own urine, and how to sterilise a syringe and to administer his insulin. When the investigations are complete, which is usually in about a fortnight, he is sent out with a supply of insulin and urine-testing outfit, and is told to report to his doctor once a month. If any sugar appears in the urine he returns to hospital at once, where a new diet is worked out for him. According to workers in those countries the scheme works admirably. The other solution is for the blood analysis to be done at some central institution, just in the same manner that Wassermann reactions are done for many doctors. Prof. FOLIN suggests that blood may be suitably preserved for sugar determinations by the addition of a little formalin. This has been tried and has been found to work splendidly. Bloods have been kept as long as 56 hours without any change in the blood-sugar being demonstrated.

STATE CONTROL OF HOSPITALS.

ON another page our Australian correspondent summarises an important new measure for the control and coördination of hospitals in the State of Victoria. All charitable institutions, he explains, will now have to be registered; no financial appeal may now be made, and no contributions may now be received, on behalf of any unregistered foundation; in addition the State has armed itself with power to close or amalgamate hospitals and to declare the use to which they may be put. Many social developments initiated by the Governments of Overseas Dominions have ultimately been adopted by the mother country, but, with our admirable voluntary hospital system and our absence of enthusiasm for central control, it is unlikely that in this lead England will quickly follow the lead of Victoria. We in this country have never had any adequate system of registration although a hundred years ago Parliament did direct that charitable donations should be registered in order to avoid loss and encourage payment. Nor have we any control over charitable appeals, except that the police regulate street collections and except that (quite unofficially) a few journals and some societies display a certain vigilance in these matters. As for any coördination of hospitals in England or any power to close them or rearrange their objects, we can produce no example except the control exercised within strict limits by the Metropolitan Asylums Board over the various institutions which it administers. Our Ministry of Health, on its inception in 1919, was ordered by Parliament to take steps to coördinate measures conducive to the health of the people, but in the matter of hospitals the Ministry has not a clean slate upon which to write. For the history of our hospital legislation is ancient and intricate. It is interwoven in its early stages with religious foundations, maisons de dieu, and houses of correction for the poor. There are inconvenient chapters about mortmain and the doctrine of charitable uses. But if the law has sometimes disallowed bequests for philanthropic objects, it has given cast-iron support to anything in the nature of a trust. The Charity Commissioners may here and there permit the sale of a site or may encourage the making of some minor change by means of a private Act of Parliament, but, on the whole, would-be reformers and coördinators have no primrose path to tread. Countries with less history have more opportunity. Already in different parts of Canada and Australia legislatures are finding it necessary on the one hand to organise new municipal hospital districts based on public finances and, on the other hand, to regulate the conduct of private hospitals. The measures now initiated in Victoria may be adopted elsewhere within the Empire. If we cannot imitate them in this country, and if, indeed, we may not wish to do so, we shall nevertheless watch their progress with keen interest.

THE FUTURE OF NEUROLOGY.

NEUROLOGY to-day stands in a peculiarly interesting position. No thoughtful observer can fail to be impressed with the existence of conflicting tendencies which do not make for progress; the neurologist himself is well aware of a change in outlook and scope which will have to be faced squarely if he values peace of mind. We do not know when the term "neurologist" came into vogue, nor, for that matter, can we define the limits of his specialty, but we have always supposed it concerns the totality of the problems presented by the nervous system in health and disease. The later decades of last century and the earlier years of this constituted a period of immense activity in neurological classification and description, a time when the clinico-pathological method ruled supreme, when the neurologist busied himself with numerous problems of organic nervous disease and utilised anatomical and physiological data as a basis on which to erect his knowledge of his subject. Trained in this eminently reasonable fashion, grounded on the firm foundation of anatomy, he proceeded to deal with nervous disease as it presented itself to him clinically without any uneasiness in respect of his competence to deal with every type of case. While one might be more interested in "organic" and another in "functional" clinical material, neither felt any embarrassment in handling a case of hemiplegia or of hysteria indifferently. Some of the greatest neurologists of other years—CHARCOT, WEIR MITCHELL, HUGHLINGS JACKSON—made contributions to both organic and functional neurology of surpassing interest and worth. No distinction prevailed between the "organic" and the "functional" for the simple and adequate reason that no distinction

was considered to exist. In his consulting room the neurologist felt his activities did not automatically cease at the level of cerebral tumours; he considered himself justified in administering to the mind diseased because he regarded the brain as the organ of mind, and he was familiar with the anatomy and physiology of the brain.

A change has come over neurology since the war; a war legacy which the pre-war neurologist may be pardoned for not, perhaps, welcoming altogether without reserve. Even before that period what had been tacitly considered the neurologist's field had been steadily encroached on by bacteriologist, syphilologist, endocrinologist, and internist; a movement, needless to say, the outcome of which has been beneficial to all concerned, for the investigations of these other specialists were conducted on clinico-pathological lines and have resulted in permanent additions to our knowledge of the nervous system. Psychiatry, too, stood to benefit by the application of similar bacteriological and other lines of research to its manifold problems. No one interested in the study of nervous and mental disease ever doubted the value of a combined approach of this description to the outstanding difficulties of his subject, just as to-day he is confident of the usefulness, nay, the indispensability, of the contribution which the biochemist can offer. The change, however, to which allusion has been made is of another kind. The study of functional nervous disease and the treatment of functional nervous cases seems to be passing to some extent into the hands of a generation of self-styled "neurologists," not a few of whom—it may be said without exaggeration and without offence—seem to act as though knowledge of the anatomy and physiology of the nervous system were immaterial, if not an actual hindrance. Satisfied, it may be, by the assurance of other investigators that no "organic signs" are present, they proceed to treat their cases by methods called "psychological," methods in which all consideration of the somatic condition of the patient is eschewed. The "clinical psychologist" of to-day finds support for his persistent attempt at an artificial separation of one variety of neurological case from another in the most recent work of Prof. WILLIAM MCDOUGALL,[1] who declares that any psychology based on the assumption that man is merely a mechanical structure is unprofitable and misleading. Prof. MCDOUGALL holds that biophysical, biochemical, and physiological knowledge does not take us any distance in the direction of solving problems of regulation and adaptation, that the doctrine of localisation of function in the cerebral cortex is "rocking insecurely," and that "the only wise course for the psychologist . . . is the bold one of asserting the relative independence of his science." Almost 20 years ago the same writer published a valuable little primer[2] in which he endeavoured to show "how each of these two bodies of doctrine, the physiological and the psychological, supplements the other, deepening our insight into the processes that result in the actions of men and animals, and how the conjunction of the two kinds of research brings before us a number of problems of the deepest interest that remain hidden so long as we confine our attention to one or other of these sciences." Curious, indeed, is the impression left on the mind by the conjunction of these two citations. The student of the subject may be allowed to decide which Prof. MCDOUGALL he prefers.

For ourselves, we believe that efforts to divorce disease of the mind from disease of the nervous system are doomed to failure. From the standpoint of the clinical neurologist, we see nothing but confusion and therapeutic nihilism confronting all such attempts. Not only is it impracticable to decide where functional symptoms end and organic symptoms begin, and arbitrary to assign each category to the ministration of distinct types of specialist; it is equally unsatisfactory to suppose that since neurophysiological knowledge is, in the opinion of Prof. MCDOUGALL, "astonishingly defective," it can throw no light on the problems of the clinician. The latter welcomes any light on his subject, from any source; he is no more intolerant of the approach made from above by the psychologist than he is of that made from below by the physiologist; but he objects to any doctrine which would compel him to believe that function and structure are not interrelated, that the phenomena of mental disease are not to be studied in connexion with a disordered nervous system, that the world of the psyche is a realm apart, unapproachable except by psychological methods. In his thoughtful presidential address before the American Neurological Association in 1921,[3] Dr. SIDNEY SCHWAB, of St. Louis, points out clearly the applicability of neurological ways of study to the problems of mental disorder. As a teacher, he has noted the ease with which the student examines a case of tabes and his awkwardness and embarrassment in the presence of a case of dementia præcox. That a different kind of thinking is required in one case as compared with the other is surely an unwarranted assumption. Psychological methods of investigation are as material as any employed by the neurologist. Did the student realise that, as Prof. R. J. A. BERRY[4] puts it, the same type of neural machinery which serves for the simpler reflexes is also utilised, though in an immensely more involved form, for the display of emotions and of mind, he would be less conscious of hesitation, and his dilemma would disappear. Prof. BERRY urges the medical man to remember the formula—no neurone, no mind. Weighty are the accumulations of objective evidence exemplifying the interrelation of the two aspects of neurological research. The neurologist brought up in the school of organic study must assimilate the knowledge of the working of the mind gained by those who have approached the subject from another angle, just as these, in their turn, ought not to remain indifferent to progress made along anatomo-physiological and other lines. Psychology, we are convinced, will suffer if it separates itself from the problems of medicine as a whole.

[1] An Outline of Psychology. London. 1923.
[2] Physiological Psychology. London. 1905.

[3] Archives of Neurology and Psychiatry, 1921, vi., 255.
[4] The New Psychology. Melbourne. 1921.

MEASUREMENT OF PROGRESS IN PUBLIC HEALTH.—The William Farr Lecture, by Sir Arthur Newsholme, will be delivered at the London School of Economics and Political Science, Houghton-street, Aldwych, W.C., on Oct. 4th, at 5 P.M. The chair will be taken by the Minister of Health.

CONDENSED MILK REGULATIONS.—Regulations were made by the Minister of Health on May 1st last providing for the manner in which any tin or other receptacle containing condensed milk is to be labelled or marked, and prescribing the minimum percentages of milk fat and milk solids in condensed milks. The date fixed for the operation of the Regulations was Oct. 1st, but as difficulties have arisen in consequence of the recent dock strike in disposing of stocks of condensed milk already in this country which do not comply with the Regulations, the Minister of Health has decided to postpone until Nov. 1st the operation of the Regulations in regard to retail sales in this country. Amending Regulations to give effect to this decision will be issued within the next few days. It is not intended to alter the date fixed for the application of the Regulations to condensed milk imported into this country—viz., Oct. 1st.

Annotations.

"Ne quid nimis."

THE PASSING OF THE PILL-ROLLING CHEMIST.

TIME was when every pill and potion was concocted on the spot by a chemist skilled in the handicraft as well as the theories of his calling. During the last decades a great and rapid change has taken place in the duties of the dispensing chemist, who is becoming more and more a salesman of ready-made drugs, and less and less of a dispenser weighing out and compounding remedies from a doctor's prescription. No doubt a good deal depends upon the class of practice, and there are still many dispensers who are kept quite busy at their proper work. Opinion may vary whether the change described is or is not for the better, but it is certainly proceeding steadily and irrevocably, and it is well to take stock of it, to see whither it is leading us, and in what ways, if any, it may be modified or diverted for the public good. This subject has lately been under discussion in the Danish medical press, and it is possible by a study of conditions in Denmark to obtain a bird's-eye view of some aspects of the problem as it presents itself in England.

The Danish regulations controlling the dispensing of drugs in chemists' shops are numerous and far-reaching. The chemist is liable to unexpected visits of inspection, and the cleanliness of his hands, the weight of his aspirin powders, and the confinement of poisons to the poison cupboard are all matters over which he may come to grief. It is one of the anomalies of the present changing state of affairs that while the small dispensing chemist is thus carefully policed, the wholesale manufacturing chemist, whether he be a native of Denmark or a foreigner, is under only lax control. His compounds may, and probably do, contain the exact quantities of the drugs indicated on his labels. It is, of course, in his own interests that his wholesale dispensing should be conducted on the most accurate and reliable lines, and it is probable that the chances of errors of dosage are smaller in his hands than in those of the retail dispensing chemist. But it is safe to venture the forecast that the time is not far distant when the wholesale manufacturing chemist will be under as close official supervision as his small competitors. From the point of view of the public's purse the change to which we have referred may be for the better. The hand-rolled pill made to order must inevitably cost more than any manufactures turned out in thousands. Recent advances in physical chemistry have greatly strengthened the hands of the manufacturing chemist, and now that such considerations as osmotic pressure, sterility and hydrogen-ion concentration of drugs for parenteral injection have come to the fore, it is inevitable that the old-time dispensing chemist should be unable to fulfil all that may be required of him. He is not, and it would be unfair to expect him to be, a bacteriologist. But, being neither a bacteriologist nor a machine capable of mass production, it is inevitable that he must sooner or later become a connecting link between the manufacturing chemist and the public.

As regards the manufacturing chemists it is evidently desirable that his products shall be under as close control and supervision as those of the small dispensing chemist whom he is displacing. Even the manufacturing chemist may, like Homer, be caught nodding, and a case has recently been reported in which a firm of manufacturing chemists with a world-wide reputation sold a preparation supposed to contain a ferment of such-and-such potency and capable of withstanding the action of the hydrochloric acid of the gastric juice. Tests showed this preparation to contain the ferment indicated on the label, but this ferment was destroyed in a few minutes by n/100 HCl. No doubt such cases are rare and probably a vanishing quantity in regard to firms of high and established reputation, which have nothing to fear and, indeed, everything to gain from the inspection which is required to keep up the standard of the laggard. The old order of dispensing is giving place to new, but let us make sure that the new order is of the best.

THE BENZOATE TEST FOR RENAL FUNCTION.

THE interest in tests devised for showing renal inefficiency has grown considerably of late years. Undoubtedly the opportunities provided by the war acted as an important stimulus for research into kidney function tests; the work of Prof. H. Maclean can be quoted as perhaps the best example of the use made of systematic examination of soldiers. Tests of renal function can be divided into three headings: Firstly those in which the partition of various substances between blood and urine is examined; secondly, those depending on the administration of some foreign substance, such as a dye, and observing how rapidly and completely the kidney excretes it; and finally, the renal function can be tested by determining the excretion of some substance native to the individual. The blood-urea test is an example of the first group, the phenol-sulphonephthalein test is typical of the second group, whilst Prof. Maclean's urea-concentration test is perhaps the best known instance of the third group. The benzoate test of Swanson and Kingsbury also belongs to the last-named category. In their original paper, published in the form of a report to the Society of Biological Chemists in December of 1920, these authors called attention to the fact that hippuric acid is the only urinary constituent synthesised by the kidney. As is well known, the kidney conjugates benzoic acid with glycine and the resulting hippuric acid is excreted into the urine. That the greater part of the hippuric acid occurring normally in the urine depends on the amount of benzoic acid ingested in the food had been proved previously by other workers and was confirmed by the authors. These physiological facts suggested a new test for renal functions, and in a more recent paper[1] Dr. F. B. Kingsbury describes some of the results obtained with it. The test proper is performed on the patient as soon as he rises from his bed in the morning. The only preparation necessary is that he must be forbidden to eat fruit of any kind, since the amount of benzoic acid contained is quite enough to upset the interpretation of the test. On rising the patient empties his bladder, and immediately drinks a solution of 2·4 g. of sodium benzoate in about 100 c.cm. of water. The container is rinsed out with about 200 c.cm. of water and this is also drunk. After an hour has passed another 200 c.cm. of water is taken, making a total of 500 c.cm. of fluid in all. The bladder is emptied at the end of the second hour and also at the end of the third hour, both specimens being preserved for subsequent analysis by the addition of 10 drops of a 10 per cent. solution of thymol in chloroform, and 15 c.cm. of 2 per cent. nitric acid. The volume of each specimen is measured and an aliquot specimen is taken for analysis. The author, working with medical students, found that 82 per cent. of the ingested sodium benzoate was excreted in the two-hourly specimen and that 16 per cent. was the average for the third-hour specimen. A series of pathological cases are given by Dr. Kingsbury, and it is shown that in cases of impairment of renal function the excretion of hippuric acid under the above conditions is markedly decreased. It is also claimed that the test gives positive information in very early conditions, when other well-known tests, such as Maclean's urea-concentration test and Volhard's water-excretion test, indicate little or no impairment of the renal function. Positive results are said to be obtained in cases having normal blood

[1] The Benzoate Test for Renal Function, II. Minneapolis: Archives of Internal Medicine. Vol. xxxii., No. 2.

analyses. It is to be noted, however, that all the cases described possessed well-marked clinical symptoms, and that none of them could be called very early cases of kidney damage. The benzoate test has apparently not yet been tried in this country; but if the claims of the authors are borne out it should become an important method of examining the kidney function.

THE BACTERIOPHAGE IN DRINKING WATER.

CERTAIN obscure phenomena which are noted from time to time in the routine bacteriological examination of drinking waters may possibly be ultimately traced to the action of d'Herelle's bacteriophage. As an instance of this, which has now become almost classical, one may cite the experiments of Hankin, which were published in 1896, upon the bactericidal properties of certain Indian river waters. This observer noted that the water of the Jumna, just below Agra, contained over 100,000 organisms per c.cm., but that 5 km. further down the river only 90–100 organisms were present. On further investigation it was found that in test-tube experiments the filtered water exerted a marked lethal action upon the cholera vibrio, whilst after boiling no such action was present. Hankin attributed this effect to a volatile substance which he failed to isolate. D'Herelle, who has redirected attention to these experiments, considers it an undoubted example of bacteriophagic activity. The possibilities latent in these lytic substances have been recently examined, from another point of view, by Sir Alexander Houston and his colleagues.[1] One of the bugbears of the water bacteriologist is the impossibility of deciding whether typical colon bacilli, whose presence in waters is a matter of so much importance, are of human or animal origin. Since if derived from the latter they would be regarded with much more lenience than in the former case, it would be a matter of great practical utility to have a simple test which would afford such a distinction. At the Metropolitan Water Board's laboratories a comprehensive series of experiments has been undertaken to find out if such a differentiation could be obtained through the medium of the bacteriophage; it being thought that strains of human origin, and lytic for the human colon bacillus, might be discovered which would constantly lyse these organisms and be without action upon types of colon bacillus derived from animal sources. These experiments, though extremely interesting in their details and worthy of perusal on account of the information they contain as to bacteriophages in sewage, and upon certain technical points, have proved abortive, as was rather to be expected from a knowledge of the wide activities of the bacteriophage already exposed by d'Herelle. In connexion with the whole question of the activities of these widely disseminated substances in drinking waters, we also call to mind the well-known decrease in bacterial content which takes place in many waters when stored, and the oligodynamic action of certain waters. These phenomena have been attributed to electrolytic action, producing agglutination of the organisms and an apparent instead of a real diminution, and to the lethal effect of minute quantities of salts of the heavy metals. It may well be that this disappearance of bacteria is sometimes due to bacteriophagic action. Experiments of Miss Lepper[2] have shown that when added to emulsions of bacteria the initial killing by the bacteriophage is very rapid; but that after a period the rate of the process slows off, and becomes progressively slower as the limits of the experiments are reached. It would appear, therefore, that where the bacteriophage is much diluted and the organisms, relative to experimental conditions, are extremely few—a state of affairs which would obtain in stored drinking water—the great dispersion of the two active factors, bacteria and bacteriophage, could well produce the relatively slow disappearance of bacteria which is sometimes so striking an occurrence.

[1] Seventeenth annual report of the Metropolitan Water Board, London, 1923.

[2] Elizabeth H. Lepper: The Rate and Progress of Bacteriophage Action, British Journal of Experimental Pathology, August, 1923.

THE PROBLEM OF THE DIPHTHERIA CARRIER.

A RATHER pessimistic paper on the control of diphtheria carriers has lately been published by Dr. Max Christiansen[1] of the Blegdam Fever Hospital in Denmark. It would seem that two or three negative bacteriological reports are of little value when diphtheria patients are ready to be discharged from hospital. Among 100 such cases there were as many as 40 in which three negative examinations for diphtheria bacilli were made and in which, at a later date, these bacilli were found. Experiences such as this afford an explanation for the old observation that "return" cases are as frequent when a diphtheria patient has been discharged from hospital with a negative report, as when he has been discharged with a positive report. At the Blegdam Hospital the rule has been adopted of not transferring diphtheria patients to other hospitals until five examinations of both nose and throat have proved negative. Even so, the mesh of this net seems to be too coarse to retain every infectious case, and were it to be made fine enough for this purpose, the cost of running a fever hospital would be exorbitant. Another disconcerting observation made by Dr. Christiansen is that the aural discharge in cases of scarlatina frequently contains the diphtheria bacillus. He has observed as many as 28 such cases, in 11 of which diphtheria bacilli were also demonstrable in the nose or throat. How, in the remaining 17 cases, diphtheria bacilli came to be limited to the discharge from an ear, he is at a loss to explain; it was highly improbable that these patients were infected during their residence in hospital, for bacteriological examinations were made at the time of admission to hospital as well as later. Dr. Christiansen adumbrates the possibility of the scarlatinal infection of the throat and nose having displaced the diphtheria bacilli from these two sites, whereas it was incapable of doing so from the external ear. His demonstration of diphtheria bacilli not only among many ex-patients, but also among many school-children who had apparently never suffered from diphtheria, have led him to adopt a sceptical attitude as to the efficacy of strict and wholesale isolation except under primitive and transparent social conditions. The problem, in his opinion, is more likely to be solved by employing the Schick test for discovering susceptible persons, and by vaccinating such persons according to Behring's technique.

[1] Ugeskrift für Læger, August 16th, 1923.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

IT is a significant sign of the times that the whole of the October number of *Tubercle* is devoted to the surgery of the lungs and the pleural cavities. The treatment of surgical tuberculosis, it would seem, is steadily becoming more conservative, while the treatment of pulmonary tuberculosis—that hitherto jealously guarded preserve of the physician—is becoming every year more surgical. A special bibliography, published in this number of *Tubercle*, of articles on chest surgery, is remarkable for this that though it covers as short a period as 1920–23, it yet runs to almost five pages. In the first original article Mr. H. Morriston Davies traces the progress made in this direction during the last few years. He finds that the operations of extra-pleural pneumolysis and thoracoplasty are indicated only when treatment by artificial pneumothorax has been given a fair trial and has proved impracticable. As for the results of the thoracoplastic operations, estimates vary considerably according to the choice of case, the skill of the operator, the financial status of the patient, the quality of the after-treatment, and various other

factors. Mr. Morriston Davies has achieved freedom from symptoms or much improvement in 50 per cent. of his cases, and his operation mortality is only 8·3 per cent. This mortality could probably be appreciably reduced by improvements in the anæsthesia adopted. This is such an important aspect of the problem that it is dealt with separately in an original article by Dr. L. W. Shelley, who discusses the choice and the method of administration of the anæsthetics most suitable for these radical operations. In a review of another paper which also deals with the problem of anæsthesia, Prof. Bull of Christiania asks: Why did eight patients die within a few days of the operation? He notes as significant the fact that the clinical picture was remarkably uniform. These post-operative fatalities did not usually overtake patients leaving the operating theatre in an exhausted state, and with a pulse of 120 or more. In fact, the patients who died a few days after the operation often seemed to stand it wonderfully well. When the solution is found to this riddle, it may confidently be expected that this operation will enjoy much greater popularity than it does at present. Another drawback to this operation is the fear of an open pneumothorax, and the slow development of chest surgery, as compared with abdominal and even head surgery, appears to have been mainly due to an almost morbid fear on this score. Now that the mechanism of mediastinal flutter and other sequels of an open pneumothorax is more fully appreciated, the bugbear of yesterday has to-day become a fairly well-controlled incident. The surgical treatment of pulmonary tuberculosis has been slow in achieving recognition in this country, but we may find a certain consolation in this that we are now beginning to benefit from the experiments and mistakes of pioneers in other countries.

DELAY IN PUBLICATION OF ACTS.

ON the last day of July the Rent Restriction Act of 1920 expired. On that same day a new Act received the Royal Assent and came forthwith into operation. Apart from introducing still further complications into the relationship of landlord and tenant—a matter which affects most of His Majesty's subjects—it contains provisions as to certification of dwelling-houses by sanitary authorities which are of special importance to public health administrators. But, though this Act came into force on July 31st, it was nearly a fortnight before an official copy of it was available for the public. Complaints of the delay appeared in the daily press, and even county court judges had to adjourn cases for want of information as to the law they were to administer. The same dilatoriness was displayed in other instances which more particularly concerned the medical profession. The brief Dentists Act took a full fortnight to produce. The Salmon and Freshwater Fisheries Act, which contains sections on Rivers Pollution, was a longer document and not available till nearly a month after it was passed. As is usually the case, it had been in print in Bill form for many weeks previously, and the wording required but the most trivial alterations when the Bill became an Act. It is true that the Fisheries Act does not operate until the end of the year, but postponed operation is no justification for postponed publication. Indeed, if these delays continue, it would be only fair if Parliament made it a rule never to pass an Act which took effect from the date of passing. The situation is even worse if we turn to the local Acts, many of which are of considerable importance to public health authorities and medical officers. It may seem incredible, but it is the fact that some of the local Acts passed in the middle of July, and many of those passed at the end of July, are even now not yet available to those whom they concern. The position in fact recalls the anecdote of the draftsman who many years ago was urging Whitehall to revise and consolidate the Food and Drugs Acts which were then, as they are now, a not entirely perfect body of law. A prominent official is said to have protested that there was no necessity for such a measure. "We understand the Acts inside the department, and the public finds out in the police court." If this cynical attitude does not survive in Whitehall, it might be suggested to the King's Printer that he should expedite his statutory publications. We believe it is a legal principle, perhaps we should call it a legal fiction, that we are all supposed to know the law. If so, there is no more urgent work before the official printers than the issue of Acts of Parliament.

There is another point not without effect upon the accessibility of legislation to the citizen who has to obey it. There has been a regrettable increase in the price of Acts. The Public General Acts passed last year cost a good deal more than a pound to purchase separately, and though, for those who could manage to wait till the end of the year, a collected edition ultimately appeared at the price of half a guinea, this latter price compares most unfavourably with the pre-war standard charge of 3*s*. which was invariably made for this volume, however great its bulk, down to the year 1918. As every Act had already been printed in Bill form, and as it must be printed for official use in any event, there seems no reason why the public should not be allowed to acquaint itself with the laws of the country at the cheapest possible cost.

THE ATTENUATION OF SMALL-POX VIRUS: AN EIGHTEENTH-CENTURY EXPERIMENT.

THE practice of inoculation against small-pox, as is well known, was first adopted in England in the early years of the eighteenth century, when it was introduced from Turkey through the letters of Lady Mary Montagu, wife of the British Ambassador at Constantinople. Towards the end of the century, when Jenner, in 1796, began to make experiments with cow-pox, inoculation as a preventive measure had spread widely over Britain, even to the remoter parts of Scotland. The operation was performed with the fresh crusts taken from a small-pox case, and although the disease so transmitted proved usually to be less severe than infection acquired by contagion, the idea of treating the crusts in any way so as to weaken their infective power while at the same time ensuring immunity had apparently not been entertained by any medical practitioner. But medicine has time and again registered a debt to those who, if not "quacks," at least were outside the pale of the profession, and it was a "Jack-of-all-trades" in the Shetland Isles who first put into practice the attenuation of the small-pox virus before transmission. His method was to "mature" the crusts from a small-pox patient for a number of years before inoculation. The story of his work is found in the "Statistical Account of Scotland," compiled by Sir John Sinclair, M.P. for Caithness, and published in 1791—in itself an interesting document and the forerunner of the general Census which was instituted in 1801. Sir John Sinclair memorialised all the parish ministers of Scotland for information on the natural history, population, and productions of their parishes, and in the report from Mid and South Yell, Shetland, the Rev. Mr. Andrew Dishington records the following:—

"Population: The population of these parishes has of late years considerably increased. For this two reasons may be assigned: (1) The system adopted by the landholders of parcelling out their lands into very small farms, &c., ... and (2) the amazing success with which inoculation has been attended. Formerly the small-pox occasioned the most dreadful ravages in these islands; frequently carrying off a fifth part of the inhabitants. Now hardly any suffer by this disorder. Inoculation is successfully practised, even by the common people, but in particular by a person whose name is John Williamson, who, from his various attainments, is called *Johnny Notions* among his neighbours. Unassisted by education, and unfettered by the rules of art, he stands unrivalled in this business. Several thousands have been inoculated by him and he has not lost a single patient. His success being so remarkable, it may not be improper to take some notice of the method

he pursues, in case it can furnish any useful hints to persons of the medical profession. He is careful in providing the best matter and keeps it a long time before he puts it to use—sometimes seven or eight years. And, in order to lessen its virulence, he first dries it in peat smoke, and then puts it underground covered with camphor. Though many physicians recommend fresh matter this self-taught practitioner finds from experience that it always proves milder to the patient when it has lost a considerable degree of its strength. He uses no lancet in performing the operation but, by a small knife, made by his own hands, he gently raises a very little of the outer skin of the arm so that no blood follows; then puts in a very small quantity of the matter, which he immediately covers with the skin that had been thus raised. The only plaister he uses for healing the wound is a bit of cabbage leaf. It is particularly remarkable that there is not a single instance in his practice where the infection has not taken place and made its appearance at the usual time. He administers no medicine during the progress of the disease, nor does he use any previous preparations. He is a singular instance of an uncommon variety of talents, being a tailor, a joiner, a clock and watch maker, a blacksmith, and a physician."

Whether this method originated with him or not cannot be proved, but if it did, then this "orra man" anticipated much of the recent work which has been done on these lines.

"MEDICAL SCIENCE ABSTRACTS AND REVIEWS."

WITH its ninth volume, of which the first number appeared on Oct. 1st, *Medical Science Abstracts and Reviews* enters on a new phase in its career. Following changes made last year on the surgical side, now under the control of Mr. C. C. Choyce, new editorial arrangements in the Section of Medicine have taken effect. This great subject will be divided under the following headings, each controlled by the editor named: General Medicine, Prof. F. R. Fraser; Cardio-vascular Diseases, Sir Thomas Lewis; Metabolic Diseases, Prof. H. Maclean; Respiratory Diseases, Prof. J. C. Meakins; Diseases of the Nervous System, Dr. F. M. R. Walshe; while Prof. T. R. Elliott will act as associate editor for the whole section. Reviews and abstracts will continue to be published as before, but no attempt will be made to cover the whole output of medical publications; future reviews will deal on suitable occasion with selected articles or groups of observations. For abstracts the general policy will be that of selecting only such articles as appear to contain original information with conclusions based upon trustworthy methods of observation and thought. Of a select group of journals, however, all will be noticed completely as each issue appears, a full list of contents being given, together with abstracts of all the more important articles. In the October issue the current numbers of five journals—*Heart*, *Brain*, the *Journal of Experimental Medicine*, the *Journal of Infectious Diseases*, and the *British Journal of Experimental Pathology*—are thus treated, while reviews deal with Vincent's disease and with the work of R. Magnus and his collaborators on the pharmacology of the nervous system, with special reference to postural and other reflex reactions. Sixty-four pages are devoted to well-chosen abstracts, and an index of subjects and authors dealt with in Vol. VIII. concludes an admirable number, which contains also a key to the initials formerly given at the end of each review and abstract. This custom has now wisely been discontinued, the full name of each reviewer being set out. If complete anonymity is not to be preserved there is little point in publishing initials and withholding the key till the index appears.

We rejoice that the scope of the journal is to be less ambitious, in that any attempt to deal with the whole output of medical literature is to be abandoned. It must be admitted that in the past editing has not always implied selection and that certain sections have occasionally been overwhelmed by the contributions of one transcriber. The laudable anxiety to give due credit to foreign authors, whose work might not be easily accessible to British readers, has led to some strange results. For example, in a review of diseases of the spleen, purporting to be complete, a list of published cases of the rare Gaucher's disease omitted one published in the *Journal of Pathology and Bacteriology*, though its authenticity has never been in doubt. Again, when the mass of material dealt with is too great publication of abstracts of original articles must be long delayed and may ultimately give more pain than pleasure. If we stress some of the difficulties with which editors of this journal have been unable to cope in the past, it is only because the excellence of the matter in certain branches of medicine such as bacteriology, biochemistry, and radiology has set a high standard. The official organ of the Medical Research Council commands respect, and we believe that with this volume its usefulness, already unquestioned, will so increase as to make it a necessity for men practising medicine and surgery as well as those engaged in scientific research.

THE INSURANCE MEDICAL SERVICE.

As we go to press important decisions are being made on which depend the whole future of the panel service. Last week the Minister of Health met the National Health Insurance Consultative Councils for England and Scotland and on Oct. 2nd he received the Insurance Acts Committee of the B.M.A., when a final effort was made to make clear the standpoint of the doctors of the country. During the 48 hours following this meeting the considered reply of the Minister with the Government's offer was to be in the hands of the Insurance Acts Committee which had arranged to meet on Oct. 4th to consider the position. Between this date and Oct. 18th, when the annual conference of the Panel Committee takes place, meetings of practitioners will be held throughout the country in order that their representatives on the Panel Committee will be well informed as to the feeling of the profession on the term of service put before them.

COMPLEMENT DEVIATION IN TUBERCULOSIS.

A LARGE amount of investigation of the Bordet-Gengou reaction in pulmonary tuberculosis has been done in this country by Lisle Punch and Hope Gosse among others, and recently in Italy Dr. N. Parise has published the result of his own observations and researches which form an interesting comparison.[1] The antigen used by him consists of a bacillary emulsion prepared from old cultures of tubercle bacilli (three to four years) on agar, in which the agar is completely covered by a layer composed of numerous small scales, which are carefully scraped off and then subjected to a lengthy emulsification in a sterile glass mortar, 50 c.cm. physiological saline solution containing 1 per cent. carbolic acid being added drop by drop. This antigen keeps well at ordinary temperatures for 60 to 90 days. Experiments were made to show how the Bordet-Gengou reaction behaved (1) in healthy individuals, (2) in those affected with various non-tuberculous maladies, (3) in confirmed, and (4) in suspected tuberculosis. Out of 14 healthy individuals, in 13 the result was definitely negative; out of 51 cases of non-tuberculous diseases 48 were negative and seven positive, consisting of four of syphilis, and one each of malaria, echinococcus of lung, and influenza. Of 78 tuberculous cases, there were 24 in which Koch's bacillus was found in the sputum, 20 in which the clinical signs were definite with absence of tubercle bacilli in the sputum, and 34 in which the physical signs were suspicious. The results obtained were as follows: Of the first 24 cases the reaction was strongly positive in 22 and negative in the other two, who were in the last stage of the disease. The explanation of this is to be found in failure of production of antibodies, due to a condition of anergy which is commonly met in tuberculous patients in the terminal stages. It was for this reason, moreover, that the experiments were conducted with a serum obtained from patients certainly tuberculous, who, while they

[1] La Riforma Medica, 1923, xxxix., July 23rd, 1923.

had tubercle bacilli in the sputum, were not in an excessively debilitated condition. In the second group of cases, out of 20 there were 17 positive and three negative reactions, the latter being from two patients suffering from tuberculous peritonitis and from one with incipient pulmonary tuberculosis. In the group of the pretuberculous, in whom radioscopic and other subsidiary signs were suspicious, there was a very high percentage of positive results equal to 95 per cent. These results, which confirm those of Punch and Gosse, point to the conclusion that the Bordet-Gengou reaction is generally negative in healthy individuals and generally positive in the tuberculous, and is of great value in the early diagnosis of tuberculosis.

CANCER AND DIET.

OUR leading article on Diet and Cancer has elicited from Dr. Copeman a letter which appeared in last week's LANCET. Dr. Copeman there disclaims the sensational statements which have been attributed to him by the lay press as having been made by him in Liverpool. He says that the use of his dietary has "not been found to exert any specific differential effect in the growth of the tumour, as had originally been hoped might prove to be the case, and that consequently the cure of cancer was not in question, the methods being at most palliative only." We welcome the disclaimer, but still find it difficult to reconcile this modest claim with Dr. Copeman's suggestion that the rationing in war time should have been the cause of the recorded diminution in mortality from cancer, or with the claim that his treatment increases the expectation of life. As regards our criticism that Dr. Copeman did not submit his results to his peers, we are informed that the meeting to which Dr. Copeman referred in his letter was a private one. It follows therefore that neither the substance of his communication at that meeting, nor any comment which may or may not have been made upon it, are available for the guidance of the medical profession as a whole, or for that of the general public.

COÖPERATION.

OUR advertisement pages this week record a sound example of the value of coöperation between the editorial and business sides of a great journal, for while we are in other places alluding with, we trust, justifiable satisfaction to the attainment of a Centenary, we notice that many of the houses which are advertising in our columns are as venerable as ourselves, and several have a longer pedigree. The centennial course of the Morison Lectures is being delivered this year before the Royal College of Physicians of Edinburgh, the British Medical Association can trace its real foundation 90 years backwards, while the firm of Allen and Hanburys has a pedigree of over 200 years. Messrs. Offord and Son have been established more than a century, the Royal Medical Benevolent Fund has been at work for nearly 90 years, while Messrs. J. and A. Churchill are only two years short of their Centenary. The house of Cassell is but ten years younger, and Messrs. Duncan, Flockhart and Co. have been well-known agents for the supply of anæsthetics since their discovery, and the house of Martindale arrives at its jubilee this very year. Claimants to seniority ranging back for long if lesser periods are too many to be enumerated, but apart from the valuable information contained in the advertisements, the reader will find interesting notes on medical and pharmacological history in the *dossiers* of many of the firms. To the enterprise and support of many of these firms it has been due in large measure that we have been able for 100 years to keep faith with our readers. It may be observed that, as in the case of the editorial columns, so in the case of the advertisement pages, there is a perpetual stream of new effort. The old firms do not rely upon their antiquity for their success, for necessity, if nothing else compels them to keep pace with younger efforts directed sometimes generally and sometimes along special lines undreamt of at the foundation of THE LANCET. These efforts change from day to day with the science of medicine which, in the words of the old French proverb, changes always, but always remains true to the same objectives.

EXPEDITION OF THE LONDON SCHOOL OF TROPICAL MEDICINE TO SAMOA.

A RESEARCH expedition, under the direction of Dr. Patrick Buxton, is to leave on or about Nov. 15th for Samoa, where a number of problems of tropical medicine will be studied. The expedition will be absent for two years. The main object of study will be the practical prevention of filariasis and its associated diseases, the most striking of which is undoubtedly elephantiasis. The present is the fifth expedition which has been despatched to study this subject since the foundation of the School. The first was undertaken by Dr. G. C. Low[1] to the West Indies, and definitely established the exact mode of transmission of the filaria through the mosquito. This observer also shed a great deal of light upon the pathology of filariasis. Shortly after this the existence of a special variety of filaria worm, apparently confined to the Pacific Islands, became known. This led to the despatch of an expedition in 1910 under Dr. P. H. Bahr,[2] the results of which were definitely to establish the fact that the filaria of the Pacific inhabited by preference the lymphatic glands, that it produced embryos which circulated in equal numbers in the blood-stream both by day and by night, and differed in this respect from the nocturnal periodic habit of the filaria of other parts of the tropics. The intermediary host of this filaria was found to be a peculiar mosquito known as *Stegomyia pseudoscutellaris* (now termed *Aedes variagatus*), a day-biting insect, one which is peculiar to the Pacific Islands and which occurs there in very great numbers. No morphological differences could be ascertained to exist between the adult filaria worm removed at operation or autopsy from the Fijians and similar ones indigenous to India, China, and elsewhere (*F. bancrofti*). In 1921 a Commission under Prof. R. T. Leiper and Dr. J. Anderson studied the same question in British Guiana, where the typical *F. bancrofti* is abundant, and the report of this expedition is now awaited. To elucidate further these interesting problems regarding the Pacific filaria, Dr. F. W. O'Connor[3] was despatched to the Western Pacific, making the second expedition to that area, and visited the Allice, Tokelau, and Samoan Islands in 1921 and 1922. The result of his very extensive travels was to demonstrate more fully the correlation between the distribution of filariasis in the Pacific and that of its intermediary host, the stegomyia, for wherever this insect abounds filariasis is common. It was further ascertained that this insect is definitely connected with the presence of the coconut palm, abounding under its shadow and breeding in the disused coconut shells which are cast aside in the making of copra. It also thrives in any collection of water in the hollow trunks of the coconut palm. Further evidence was adduced that the filaria of the Pacific may be, in a pathological sense at any rate, distinguished from the true *F. bancrofti*. The close connexion between ankylostomiasis, filariasis, and tuberculosis, all of which diseases are combining to exterminate many of the Polynesian races, was definitely established. It is now proposed to extend the results of these various expeditions still further,

[1] Low, G. C.: Jl. Tropical Medicine, 1901, Nov. 1st, p. 357.
[2] Bahr, P. H.: Filariasis and Elephantiasis in Fiji. Report to London School of Tropical Medicine, 1912.
[3] O'Connor, F. W.: Researches in the Western Pacific. Research Memoirs of the London School of Tropical Medicine, vol. iv.

and to demonstrate the possibility of prevention of filariasis by measures directed against the intermediary host, the stegomyia. All attempts so far at finding a drug sufficiently potent to kill off the embryo filariæ in the blood-stream have failed, nor does there seem to be any possibility of the discovery of such a drug in the future.

The prevention of this disease is not such a difficult matter as might at first appear to be the case. It is proposed to make an actual experiment on the same lines as are familiar in the prevention of malaria and yellow fever. It is known that the insect and the disease it carries are specially common on small coral atolls, of which many are to be found in the Samoan group. On these islets the growth of vegetation composed of thick masses of coconut palms may be only some 50 or 60 yards in diameter. It is quite possible that by cutting out the undergrowth, by burning the disused coconut shells, by filling in possible breeding-places in the trees, and by providing the inhabitants with a proper water-supply, the numbers of this very specialised insect may be so reduced in a few months' time as to become negligible; and it follows that if this insect can be exterminated the disease will die out with it. Although there are five other species of mosquito which bite man in these islands, yet this is the only species (and all the others have been tried) which will act as an efficient intermediary host of the filaria. It is into this and other cognate problems that Dr. Buxton will inquire. He will be assisted in all probability by one or more newly qualified medical men from New Zealand, and it is hoped that in this way an interest for the study of tropical diseases will be kindled in the medical schools of that progressive Dominion, for it is only recently that New Zealand has been saddled with the responsibility of tropical possessions in the mandatory territory of the Samoan group. There are other important researches which the expedition will undertake, notably those concerning the physiology of the normal European body under tropical conditions, and the regulation of the formation and loss of body heat will be investigated by means of the kata-thermometer and other specialised instruments. It is hoped also to undertake researches on the biochemistry of the blood and urine during acclimatisation in the tropics, and this is a subject upon which very little information exists.

THE Royal Medical Benevolent Fund has received from Sir Thomas Barlow a donation of £300, which has been invested for the benefit of the annuitants.

AT the Royal Society of Medicine, in the Section of Therapeutics and Pharmacology, on Oct. 9th, at 4.30 P.M., there will be a discussion on the Use of Insulin in General Practice, at which the first speakers will be Prof. Hugh Maclean, Dr. George Graham, and Prof. J. J. R. Macleod.

INSTALLATION OF NEW X RAY APPARATUS IN ELGIN.—At the quarterly meeting of the managers of Dr. Gray's Hospital, Elgin, it was decided to have a new X ray apparatus installed. Mr. J. F. Cumming, of Aberlour, one of the directors of the hospital, offered to defray the whole expense of the new X ray plant.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. Gertrude Alice Rees, of West Hill-road, Bournemouth, the testatrix left £5000 on trust for her husband for life with remainder to the Liverpool Royal Infirmary to be used for the convalescent treatment of patients from that hospital in memory of her late son, Alexander Armstrong Rees, M.D., R.A.M.C.—By will the late Mrs. Susanna M. Taylor, of Putney, left among other bequests £500 to the Putney Hospital, £100 to St. Columbia's Hospital, £50 to the Cottage Convalescent Home, Wimbledon, and 10s. each to the patients at the time of her death at the Royal Hospital for Incurables, "as a little pocket money."

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXXIX.

THE TREATMENT OF FLAT-FOOT.

THE worst symptoms of flat-foot occur in feet which are not flat; the term "flat-foot," as commonly used, covers also those conditions of foot strain and flattening foot which precede the fully developed flat-foot. Symptoms of flat-foot arise when the muscles which act on the foot fail to resist the crushing down action of the body-weight. The foot itself, apart from its muscles, is not designed to support the body-weight, and, when pressure is made upon it from above, it is crushed down, flattened, and passively abducted and everted. The function of the muscles is to prevent this passive displacement and distortion by a continuous tonic reflex contraction of the adductors and invertors, which is but a part of the postural reflex which maintains the upright position of the body as a whole. Any condition, local or general, which interferes with this muscular action causes strain and flattening of the foot. The commonest cause of flat-foot in adults is prolonged standing or over-use of the foot, whereby the muscles are exhausted; almost as common is flat-foot in individuals suffering from general loss of tone from various causes. Local injury also temporarily abolishes the reflex activity of the muscles, so that traumatic flat-foot is a common sequel of sprained ankle, Pott's fracture, &c. In most cases faulty boots and shoes contribute to the mechanical strain, and are often the direct cause of the flat-foot. The effect of crushing down the foot depends upon the type of foot, and there are very many different types. In general, the severity of the symptoms is in proportion to the resistance offered. The low-arched supple foot, with freely mobile joints and atonic muscles, flattens easily, without resistance and without pain, while the high-arched thick-set or sturdy foot offers great resistance and distortion of its joints causes great pain, which is felt long before any flattening is apparent.

In most cases flat-foot develops gradually; for a long time the foot remains supple, and its natural form can be easily restored by gentle manipulation or by voluntary effort. But sooner or later the foot becomes fixed or partly fixed by secondary changes in and around the joints. At first the loss of mobility is due to "adhesions" or contracture of ligaments on the outer side of the joints, but in old-standing cases the foot becomes rigid from osteo-arthritic changes. When flat-foot develops rapidly, the pain from the rapid distortion of the joints may give rise to reflex spasm of all the muscles acting on the foot; this spasm is most pronounced in the peronei muscles, and the foot is held rigidly abducted and everted.

The only real cure is to restore to the muscles their normal postural activity, though the ideal result is not always attainable in practice. Some individuals are unsuited to muscular re-education, and in many cases circumstances, such as continued over-use of the foot, make the attempt hopeless. One must, then, be content to relieve the foot from mechanical strain, so that the patient may walk in comfort.

Preliminary Measures.

Before curative treatment can be attempted it is necessary (1) that the foot shall be capable of being brought into its proper position by the action of its own muscles, and (2) that the foot and its muscles be relieved from mechanical strain. (1) When the foot is still supple the patient can invert it and draw up the arch. When it is stiff from adhesions or shortening of the ligaments it should be thoroughly manipulated under an anæsthetic, after which it should be firmly strapped or bandaged for a few days, and active movements should be begun as soon as possible; it is not necessary to fix it in plaster-of-Paris. No attempt should be made

to mobilise old-standing or inveterate flat-feet or those that are rigid from osteo-arthritis. (2) When the foot can be brought into its natural position it is necessary to retain that position by a suitable arrangement of the boot or shoe until the normal muscular action is restored. This is in practice the most important part of the treatment, for foot strain is thereby relieved, and, whether or not true restoration of function follows, the patient is at least rescued from pain and disfigurement. It would seem superfluous to say that the boot should fit the foot were it not that the majority of people wear boots and shoes that are too big for them. The boot should hold the foot, not merely cover it.

Men's Shoes.—The usual type of man's boot or shoe, when new, has an almost flat inner sole (insole) which in no way corresponds to the shape of the sole of the foot. When a normal active foot walks in such a boot or shoe it tends to make a bed for itself by depressing the insole at the main points of pressure—namely, under the heel, along the outer border, and beneath the heads of all the metatarsal bones. To this pressure of the foot upon the insole there is, of course, a corresponding counter-pressure of the insole upon the foot. An exhausted or inactive foot is unable to resist this pressure, and, instead of moulding the insole to its own contour, it becomes itself flattened to conform to the surface upon which it rests. Further, the waist of the boot between the heel and the tread may give way when the insole becomes actually concave upwards, and the strain on the foot is correspondingly increased. The obvious way to prevent, and also to correct, this flattening effect of the boot or shoe is to make the insole to conform to the shape of the sole of the foot. The foot, indeed, should stand on its own footprint, exaggerated if need be, and will then drop into its natural position even though the muscles are relaxed. This is a question of balance rather than support; it is entirely unnatural for the arch of the foot to be propped up by a rigid unyielding support. The "moulded insole" is the best means of keeping the supple flat-foot in its proper position during use. It is made by taking the last upon which the boot or shoe is to be made and building it up with leather at the points where the insole is to be depressed—namely, along the outer border and across the tread to the ball of the big toe. The instep is thus by contrast made higher, and it may be raised still more by cutting away the last, which must be made to correspond to the particular type of foot. A foot with a high arch requires a greater depression under the tread, and a higher instep, than a foot with a medium or low arch. The height of the heel is not just a matter of choice; the correct height is found by placing a straight edge approximately at a tangent to the tread of the last, and noting its distance from the heel. The greater the depression under the ball of the foot, the higher the heel. In many cases it is an advantage to raise somewhat the inner side of the heel, so as to throw the posterior part of the foot outwards, but no wedge should be put on the inner side of the sole, for in walking the foot must "take off" from the big toe, which must, therefore, be dropped and not raised from the ground. Finally, the insole must have a firm foundation to rest upon or the waist of the boot may be broken. A stout leather "shank piece" should be inserted between the soles from the heel—not under it—to the tread.

Women's Shoes.—The usual type of woman's shoe has a heel two inches or more in height, and the sole slopes abruptly from the back of the heel to the tread, so that the foot tends to slide down an inclined plane surface on to the heads of the metatarsal bones. The sole is flexible and yielding, so that when pressure is put on it from above, the waist of the shoe is bent downwards, the toe rises, and the heel is tilted upwards and backwards. A normal active foot rests upon such a shoe only at the heel and tread. When, however, muscular action is deficient, the foot comes to rest more and more upon the insole of the shoe, and breaks it down in the middle; further, owing to lack of lateral stability, the high narrow heel causes a great strain to come on the foot in the abducted position. The moulded insole for a woman's shoe should be constructed on the lines already described, but the shoe need not be unsightly. The sole must be rather thicker than is usual in a woman's shoe, and the necessary shank piece in the waist adds a little to the thickness and weight. A heel of 1¾ or 2 in. must often be allowed. Indeed, owing to her manner of walking—which is quite different from that of a man—a woman requires a deep bed under the tread, and this in itself necessitates a relatively high heel. The "upper" may be of any material fancied; it is quite possible to construct a presentable shoe which is yet surgically correct. A central point, though not strictly correct, may be conceded; hallux valgus, except in its slighter degrees, is not due to pointed shoes, but to flat-foot, and if the shoe is in other respects correctly made, the central toe does no great harm.

The chief difficulties in practice are the inconvenience and expense of having to have every pair of boots and shoes specially made, and the difficulty of getting the ordinary bootmaker to make them as required. In the slighter degrees of painless flat-foot, especially in children, one may be content to raise the inner side of the heel and put a loose raised insole under the foot. But in flat-foot of any severity, and when there is pain, it is essential to have the boots or shoes correctly made.

Muscular Re-education.

When the foot is kept in its proper position and the strain has been relieved, the natural function of walking will in many cases provide all the exercise necessary. The patient should be told to get some spring into the gait, and to use the feet actively. An additional exercise is to stand with the feet together and sharply invert them so as to stand on their outer borders. This movement brings the postural muscles into action and draws up the arch of the foot. It is the only exercise that need be done. The patient should be told to practise it whenever he is standing. Its object is to re-educate a reflex; and a simple exercise done continually and habitually is far more effective than a series of exercises done on set occasions. No attempt should be made to correct old-standing, inveterate, or rigid flat-foot. The boot or shoe should be an easy fit, the insole should be made quite flat like the foot, and the heel should be low. If there is pain beneath the heads of the metatarsal bones, some soft material such as spongy rubber should be put under the tread.

Spasmodic Flat-foot.—The best treatment for peroneal spasm is to ignore it. It is a self-limiting condition which may persist for months, though not indefinitely. The foot, regardless of its present form, should be put into a boot constructed for its normal condition with a high arch and a deep bed under the heads of the metatarsal bones. The patient should be shown how to pull the foot inwards and relax the spasm, which he will gradually find himself able to do. It is unnecessary to divide the peroneal tendons, to crush the nerve, or to manipulate and immobilise the foot. The spasm eventually goes under the simple treatment outlined and the foot returns to its natural position.

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Previous articles in this series are:—

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(*Continued at foot of next page.*)

Special Articles.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

A Ministry of Health.

THE question of the establishment of a Ministry of Health in the Free State has lately attracted some public attention. On Sept. 19th the Council of the Irish Nurses' and Midwives' Union at its annual congress unanimously passed a resolution authorising its executive to take whatever steps lay in its power to organise a united demand by nursing organisations, and other bodies interested in health, that a Ministry of Health should be established. The following day in Dail Earann, Sir James Craig, in a debate dealing with the appointment of ministers, regretted that nothing had been said about the establishment of a Ministry for Public Health. He was not one to urge the multiplication of ministries, but surely the health of the people was of more importance than fisheries. The health of the country was in a very serious position. If a special ministry could not be set up he suggested the setting up within the Local Government Department of a department of public health, with a secretary or some other person responsible in the Dail. He regretted that Mr. Ernest Blythe was giving up the Ministry of Local Government. Mr. Blythe, in reply, said that there could be no question of having a department for local government and a separate department for public health at the same time. The Local Government Department was almost entirely concerned with matters of public health. It was really a matter of choosing a name, for it was intended to give the Local Government Department the real substance of a Ministry of Public Health, with one or two functions added to it for the sake of convenience. The position is by no means satisfactory. If the Department of Local Government is to be in truth a Ministry of Health, it should be so called, that both the Minister and his permanent staff might know where their real duties lie. At the present time the Ministry deals with many matters not remotely connected with health, such as the maintenance of roads and the control of fairs and markets. On the other hand, some important matters of health, such as the inspection of factories and the department of vital statistics, are not under its control.

PARIS.

(FROM OUR OWN CORRESPONDENTS.)

Cancer Congress at Strasbourg.

THE summer vacation, now ending, was at least partially filled for those engaged in scientific medicine by a series of important Congresses, of which the Cancer Congress held at Strasbourg at the end of July was among the more important. The Congress was presided over by Prof. Pierre Delbet, was opened by Mr. Paul Strauss, Minister of Hygiene, and included among its members many distinguished foreigners. Of the three main subjects dealt with at the Congress, the first was the experimental production of cancer. Prof. J. Fibiger (Copenhagen) discussed the Spiroptera-cancer discovered by him in 1907. This growth is produced by a parasite living in the upper part of the digestive tract of rats and mice, with the cockroach as intermediate host, the insect being infected by ingestion of the fæces of these animals. Fibiger believes that the cancrogenous action is due to the secretion of the parasites themselves in a soil predisposed to cancer. The nature of the predisposition depends on factors affecting the entire organism together with the cells at whose expense the cancer grows. Prof. K. Itchikawa (Sapporo, Japan) gave a fully documented résumé of his researches into the experimental production of cancer with tar. The simple chemical and physical irritation of tar applied repeatedly and continuously to the internal aspect of a rabbit's ear produces cancer of the epithelial cells in the same way as the action of the parasites described by Fibiger. Dr. J. A. Murray (London) read a remarkable paper on Primary and Secondary Resistance to the Production of Cancer.[1] Dr. A. Leitch (London) contributed a communication on the specificity of various cancer-producing agents, interpreting cellular cancerisation as a continuous and prolonged manifestation of the normal action of tissue repair. The second subject of discussion, the general reaction of the organism in connexion with cancer, was dealt with by Dr. Rubens-Duval (Paris) and Dr. W. H. Woglom (New York). The third subject, the treatment by radium and X rays of spino-cellular epitheliomas of the skin and mouth, was discussed by Profs. A. Bayet (Brussels) and Cl. Régaud (Paris).

Other Vacation Congresses.

The conference of French alienists and neurologists held at Besançon in August was remarkable for an attack by Dr. Hesnard on Freud's theory. Hesnard maintained that the cause of nervous and mental diseases was only related to sex in exceptional instances, being far more commonly connected with poverty, business failure, thwarted ambition, or physical infirmity. He also criticised psycho-analysis as a means of diagnosis, holding that the method is uncertain, and may induce hysterical symptoms or further derange patients already unbalanced. From a therapeutic standpoint, he considered that the numerous cases whose ætiology included an organic factor were incurable by this method, and that when psycho-analysis gave results these were no better than those obtained by any other psycho-therapeutic method. Dr. Courban attributed the success of psycho-analysis in Anglo-Saxon countries to the mystery with which sexual matters are surrounded by Protestant morality.

The Fourth International Congress of Neurology, held at the Salpêtrière, Paris, in the summer vacation, was attended by many foreign delegates, among them Sir James Purves-Stewart and Dr. G. Riddoch.

The following Congresses will shortly be held in Paris at the Faculty of Medicine: Twenty-third Congress of Urology, beginning on Oct. 10th, President, Prof. André; Thirty-second Congress of Surgery, Oct. 8th to 13th; Congress of Orthopædics, Oct. 12th; Annual Congress of Hygiene, Oct. 22nd to 26th.

A Home for Doctors in France.

A party of members of the French medical profession recently assembled at Valenton (Seine-et-Oise) in the Château de Charmilles, which has been established as a home or retreat for aged and infirm medical men, and it has been christened "La Maison du Médicin." The home owes its origin to an association which was founded in 1908 with headquarters in No. 9, Rue Astorg, Paris, whose object was to establish and control one or more homes where aged, infirm, sick, or needy

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(*Continued from previous page.*)

Dr. G. Blacker. XVII. Measles, by Dr. Foord Caiger. XVIII. and XIX. Heart Failure, Preventive Treatment, Therapeutics, by Dr. J. Parkinson. XX. Gonococcal Epididymitis and its Bearing on Sterility, by Mr. Kenneth M. Walker. XXI. Ante-partum Hæmorrhage, by Dr. T. Watts Eden. XXII. Ringworm, by Dr. A Whitfield. XXIII. Cystitis, by Mr. J. B. Macalpine. XXIV. Hæmorrhoids, by Mr. R. M. Rowe. XXV. Puerperal Sepsis, by Lady Barrett. XXVI. Cyclic Vomiting, by Dr. G. F. Still. XXVII. Asthma, by Dr. E. P. Poulton. XXVIII. Traumatic Rupture of the Urethra, by Mr. G. Grey Turner. XXIX. Habitual Constipation, by Dr. Arthur F. Hurst. XXX. Hypertrophied Prostate, by Prof. Charles A. Pannett. XXXI. Infantile Eczema, by Dr. H. MacCormac. XXXII. Exophthalmic Goitre and Other Forms of Hyperthyroidism, by Prof. G. R. Murray. XXXIII. Syphilis in the Woman of Child-Bearing Age, by Dr. Margaret Rorke. XXXIV. Anæsthetic Sickness, by Dr. J. Blomfield. XXXV. Enuresis, by Dr. H. Thursfield. XXXVI. Menorrhagia in Young Women without Gross Lesion, by Dr. J. S. Fairbairn. XXXVII. Chronic Arthritis, by Dr. W. H. Wynn. XXXVIII. Glycosuria in Pregnancy, by Dr. G. Graham.

[1] Published in THE LANCET, July 28th, p. 159.

medical men might be cared for. The Association does not aim at making financial profit; the home is maintained by donations and by subscriptions from members of the Doctors Home Association. Residents in the home contribute towards the expenses of their keep, but before the war the income from this source was never more than Fr.12,000 (£480) per annum. From the start all the best known medical men of France have given their support to the work of the Association. The principles of making a charge, however small, for board and lodging helps to preserve a sense of independence, yet while the principle is one of "paying guests," no really destitute case is ever turned away. In recent years the grounds of the home have been extended and they now cover over 15 acres. Many of the boarders spend their time working in the gardens or the orchards, and during the winter theatrical performances and concerts are held. English medical men are invited to visit the home at Valenton.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Vienna Medical Faculty: Weekly Discussions.

ACTING on a suggestion thrown out by a few members of the Vienna University, the medical faculty organised last year a series of discussions with a view to attracting the attention of the profession to the latest achievements in the art of medicine. By providing post-graduate opportunities for the interchange of ideas and opinions this scheme has, within one year, become an important asset to the entire medical profession of Vienna. The discussions are held on Monday evenings. Admission is free, no membership is required, and any medical man is welcome. Any practitioner may suggest in writing to the secretary of the faculty a subject on which he desires information. The questions submitted are handed over to leading specialists, each of whom volunteers to deliver a lecture on a particular subject. Generally a week is allowed for preparation. At the meetings anyone may put questions to the lecturers. The discussions last two hours and are well attended, the average number present being about 50. An interesting feature is the eagerness with which the older members of the profession take an active part in the proceedings of the "Seminar-abend," as these evening meetings are called. It speaks well for the institution that it has already served as a model for similar developments in various university towns of Germany. That the earnest spirit underlying such work is already bearing fruit is shown in the rising scientific standard and public reputation of the profession.

A School of Nursing for Medical Men.

The Vienna University Clinic for Children inaugurated a few months ago a totally new departure in the medical curriculum—a school of nursing for doctors. It is a well-known fact that very often the practitioner has to order this or that measure in the course of the management of a serious case of illness in a child, but the mother or even the nurse does not always know how to carry out his instructions in the most effective and satisfactory way. Often, too, doctor and mother are at cross purposes, through sheer ignorance on the doctor's part of domestic exigencies. To such considerations we owe the opening of the above-mentioned school in the Pirquet Clinic. The plan of work is as follows: Four physicians of the clinic—house physicians of the hospital—are entrusted with the entire care of the ward. They have to do all the work usually resting on the shoulders of the nurses or "sisters," in managing a sick child. This task is best illustrated by the following programme of the duties. At 5.45 A.M. the doctors take over the charge of the ward. From that time till 7.15 A.M. they must wash, bathe, and tidy the children (or babies, as the case may be). The next 30 minutes the breakfast is served by them to the patients. Up till 9 A.M. the preparation of the patients for the morning round of the professor, marking the temperature charts, giving medicine or other treatment prescribed, superintending feeding the sucklings. 9–10 A.M., morning round. 10 A.M. to 12 noon, examination of newcomers, dismissal of old patients, temperature taking, feeding of babies. 12 noon to 1 P.M., serving out of dinner (or lunch), feeding of the older children. 1–3 P.M., nursing work on the new patients, feeding of babies. 3–4 P.M., preparation for the evening round, tea for the older children. 4–5 P.M., evening round. 5–6.30 P.M., temperature taking, feeding of the babies, supper for the older patients. 6.30–7.30 P.M., filling in of the charts and records of each patient. At 7.30 P.M., the day service terminates. The night duties are at present discharged by a nurse, but will in future also fall to the lot of the physicians. Physicians attached to this ward must serve a term of two months. It is hoped that in the future all house physicians of the Pirquet Clinic will be obliged to undergo training in the school. Not a few of the duties hitherto regarded as purely "feminine," such as shaking the bed-quilts, spreading the table-cloths, or the administration of an enema, are rather embarrassing at first, but the young doctor soon gets used to it. In order to ensure variety of experience in nursing duties, the children are left in this school "for doctors only" for a few days. All new patients must pass through this ward before they are distributed in the other wards of the clinic, so that in these few days the doctor has the opportunity of studying a larger number of differing types of patient than was formerly possible. Many useful "tips" in feeding, holding, and calming children are learned and insight into the little patients' minds is gained—a point of paramount importance for the future task of the practitioner. The ward personnel includes two women, a maid for purely household work, and a nurse whose duty it is to initiate the "essentially masculine" students into what has too long been considered woman's province. The idea of this "school of nursing" has been received with great approval by the profession generally, and it is contemplated that the new curriculum for the medical student which is now under consideration and which will necessitate a year of practical work before giving the right to practise, might also include a course in this school.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Numbers of the Medical Profession in Hungary.

ACCORDING to a report issued by the Hungarian Medical Association there are at present 4489 physicians practising in Hungary. Of these, 2012 practise in Budapest. As the population of the country is something over 8,000,000, the ratio of physicians to population is too high. The number of physicians is decreasing on an average by 225 a year; the number of medical students in the country in 1922–23 was 6751. The Medical Association is now advising parents not to encourage their children to enter this overcrowded profession. The distribution of doctors is very uneven; in towns the ratio of doctors to population is 1 in 350–500, but numerous small provincial towns have no resident medical men at all.

The Scientific and Commonwealth Universities.

At the opening of the present session of the Scientific University of Budapest the number of registered students was greatly reduced as compared with that of previous years, particularly in the Faculties of Medicine and Philosophy. Many students are prevented from taking up the study of medicine by the expense involved. The Minister of Public Instruction permitted the registration of no more than 500 students in the Faculty of Law, but the "Commonwealth" University admitted 1400 students without objection from the Minister. The Scientific University does not even now recognise the Faculties of the

Commonwealth University, and the latter is not represented in the Council of the Scientific University. The Council has several times requested the Minister to establish a proportion between the numbers of students in the two Universities. The teachers in the Commonwealth University have not even the rank of lecturers, while those in the Scientific University are all qualified University professors. The Council of the Scientific University also complain that the Minister neglects the upkeep of the University library, despite its European reputation, allocating only 200,000 kronen (about £30) for the purpose during the year, whilst other libraries received 40–50 million kronen.

An Unjustified Accusation.

Dr. Ödön Nemeth, professor of mental diseases at the University of Budapest, was lately accused by a lawyer of ill-treating his (the lawyer's) brother, an army captain, while the latter was under his care in an observation ward of a mental hospital. The charge included neglect of attention to the patient's cleanliness, clothing and food, and brutal handling, with disastrous effects upon his general health. A full investigation of the facts proved that all the indictments originated with lay visitors, who made misstatements to the lawyer. It also transpired that the latter had attempted to influence the doctor with a view to removing any impediment to the captain's promotion to higher rank, and consequent entitlement to a higher pension. Dr. Nemeth brought numerous witnesses to prove that his diagnosis was correct, and was corroborated by Prof. Moravcsik, the leading forensic expert in Hungary. The treatment was shown to be the most modern and humane treatment available. The prosecuting lawyer acknowledged that his information was derived from unreliable sources, and apologised to the professor. The court was not satisfied with the apology, although the professor accepted it; a charge of falsely accusing a public official will shortly be preferred against the lawyer.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

A Case of Pneumo-peritoneum.

AN interesting case was lately shown to the Berlin Medical Society by Dr. Mosler. A man of 63 years had been run over by a butcher's cart 15 years ago. He was in hospital for five months, the case being diagnosed as a fracture of several ribs of the left side. After the accident the abdomen had always been much inflated. Radiographic examination has now revealed a quantity of air present in the abdomen, by which the liver and the spleen were displaced downwards and the diaphragm pressed upwards. The cause of this pneumo-peritoneum was obviously a rupture of the lung and of the diaphragm which had not healed. Through the fistula of the lung and the fissure in the diaphragm air was continuously inhaled into the abdomen, to be absorbed in part during the night. Notwithstanding the gravity of the injury the man suffered little and was able to work.

Regulation of Medical Fees.

As already explained in these columns, the Government is authorised by law to fix the fees in cases where they have not been agreed upon between the patient and his medical attendant and to issue official regulations in the matter. Recently sanction has been given to additional payment in accordance with the value of the currency, the last increase being to 20,000 per cent. The Leipziger Verband, the great union of the German medical profession, has protested against the amount of this increase, pointing out that the cost of living had increased by 40,000 per cent. The Government stated that the fees had been raised in the same ratio as the salary of the Government officials, whereupon the Leipziger Verband, in a letter addressed to the Government Medical Department, answered that there are many differences between Government officials and medical men to the disadvantage of the latter. The officials receive their salaries one month in advance, whilst the medical men, especially those engaged in club practice, receive their fee at the end of the month or even at the end of a quarter. The officials have no professional expenses for instruments, telephone, assistance, consulting-rooms, &c., which reduce the income by about 50 per cent.; moreover, Government officials are entitled to a pension for themselves and their dependents, whilst a medical man must try to save funds for the support of his family, a matter quite impossible under the present circumstances. Government officials residing in the occupied district receive, moreover, an extra remuneration, whilst the fees of medical men are the same there as in unoccupied Germany, notwithstanding the cost of living is several times higher there. The medical profession will, as the Leipziger Verband states, be rapidly reduced to the starvation level if its members do not get more assistance from the authorities in their struggle of life.

New First-Aid Huts in Berlin.

A private society of advertising contractors lately started a system of first-aid by constructing small huts in busy thoroughfares to contain a transportable stretcher, medicines for emergencies, dressing materials, splints, &c. In cases of sunstroke the patient may be laid in the shady hut until he is conveyed to a hospital. The hut can be opened by breaking a pane, under which the key is placed. A few of the huts—of which the society intends to build about ten—have been put up already. The expenses will be entirely met by the advertisements on the walls of the huts.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Government Control of Hospitals and Charities.

ON July 1st, 1923, came into force the Act relating to hospitals and charities passed by the Legislative Assembly of the State of Victoria in December, 1922, which, as far as can be ascertained, is the most comprehensive legislative scheme of the kind in existence. The object is the central control of all charitable agencies in the State. Some of the salient features of the Act are, that every charitable institution and every benevolent society or organisation in the State must register by approval of a Charities Board; that no person or authority can appeal for, nor accept contributions on behalf of, any charitable movement unless so registered. The Board has the power to close any unnecessary hospital or charity, to amalgamate institutions which are serving the same purpose in close proximity, to determine the use to which any institution may be put, and to resume any land which is considered essential for hospital purposes.

Post-graduate Teaching in Melbourne.

There is marked enthusiasm and activity in post-graduate teaching in Melbourne. The work is arranged by a representative committee under whose auspices Dr. J. F. Wilkinson has just completed a series of lectures on the treatment of gastric disorders and diabetes. The lecturer has recently returned from an extended tour of most of the special hospitals (English and American) doing this work. Judging from his views, especially those on the treatment of diabetes, Dr. Wilkinson spent more time in America than in England. The lectures were a masterly résumé of all the modern work, and referred especially to the new insulin treatment, the early results of which he had seen in America.

The Hobart Hospital, Tasmania.

Trouble arose at the Hobart Hospital (Tasmania) some years ago over an announcement by the Government that the hospitals were open to anyone caring

to seek admission. After protest the honorary visiting staff resigned, and the Government made a contract with one, Victor Richard Ratten, to act as surgeon-superintendent. It was subsequently discovered that Ratten had been registered in virtue of a certificate of what appeared to be a bogus American night college, thereupon the Government passed a special measure to legalise this registration. It was felt that the state of affairs at this hospital was to the disadvantage both of the medical profession and the hospital public; therefore, on the reappointment of the surgeon-superintendent falling due, an attempt was made to arrange a conference between the B.M.A. and the board of management of the hospital. This conference was arranged, but before it could take place Ratten was reappointed by the board of management as the surgeon-superintendent with limited right of private practice. The matter will now drop unless the Government intervenes, and it is unlikely that the local medical profession will accept any appointment at this hospital in the future.

Insulin in Australia.

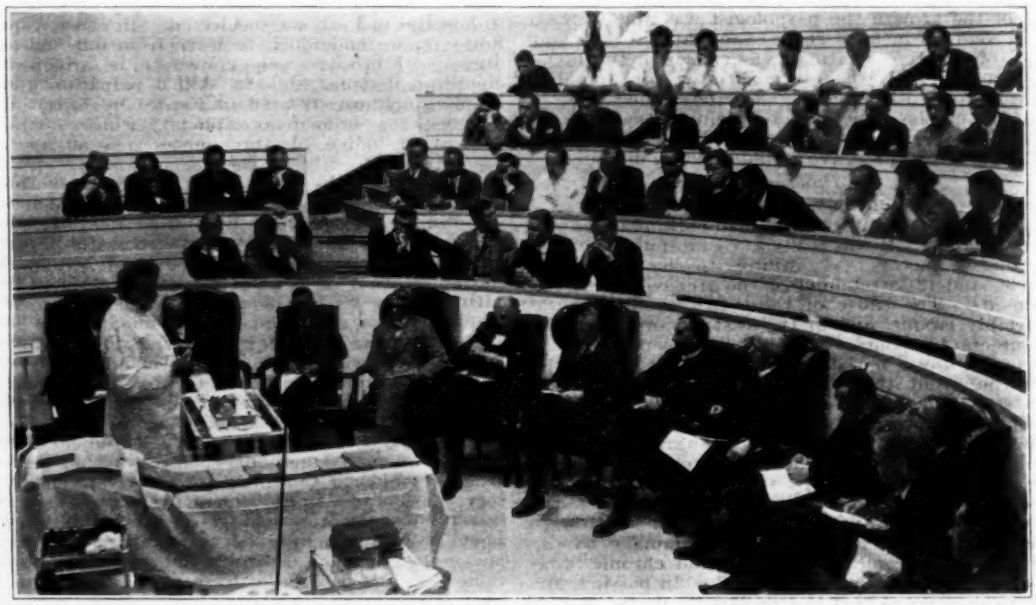
The Commonwealth Serum Institute has undertaken the manufacture of insulin, but up to the present it is only available in limited quantities and to special hospitals. The manufacture is being carried out under great difficulties, and it is not likely that it will be produced in any large amounts at present.

The Australian Medical Congress.

The arrangements for the Congress to be held in Melbourne in November are well advanced. A special feature will be a discussion on the early diagnosis of tubercle, in which all sections are taking part. Other subjects for general discussion are exophthalmic goitre and renal insufficiency.

BRITISH SURGEONS IN DENMARK.

THE recent visit of a party of British surgeons to Denmark, under the ægis of Prof. W. Thelwall Thomas, afforded a welcome opportunity to many of them to make the acquaintance for the first time of Prof. Thorkild Rovsing, the most distinguished of the Scandinavian surgeons. Rovsing's many and great achievements have been the outcome of a combination of qualities, one at least of which is rare. He has always shown an inveterate distrust of traditional teachings and text-book orthodoxy, and his work has not only consisted of building up but also of breaking down and clearing away much rubbish. His special field has for many years been abdominal surgery, and his treatise on this subject has been a standard work for more than a generation. For the past 30 years he has devoted special attention to the subject of gall-stones, and the part of this work which has already been published shows him in his most characteristic attitude—that of the iconoclast attacking false gods. It is anticipated that the final chapter of this work will be published in a few weeks; it challenges many of the accepted theories as to the genesis and development of gall-stones.



Prof. Thorkild Rovsing demonstrating to British surgeons and Danish students at the Danish State Hospital. The visitors included Mr. John Anderson, Mr. Arthur Henry Burgess, Mr. Arthur Cooke, Mr. Ernest F. Finch, Prof. E. W. Hey Groves, Mr. Robert Ernest Kelly, Sir John Lynn-Thomas, Mr. Keith W. Monsarrat, Mr. John Morley, Mr. H. Herbert Rayner, Mr. Graham Scales Simpson, Prof. W. Thelwall Thomas, Mr. G. Grey Turner, and Mr. Henry Wade, some of whom are easily recognisable in this photograph.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

To be Surg. Lieuts. (D.): R. M. Finlayson, G. G. Cruikshank, T. Hunt, L. M. Hughes, L. B. Osborne, C. J. Finnigan, R. J. M. Andrews, and A. W. Wallace.

ROYAL ARMY MEDICAL CORPS.

Maj. and Bt. Lt.-Col. R. A. Bryden relinquishes the actg. rank of Lt.-Col.

Maj. A. H. McN. Mitchell retires on ret. pay and is granted the rank of Lt.-Col.

Maj. H. C. Todd retires receiving a gratuity.

Capt. M. P. Power relinquishes the actg. rank of Maj.

Capt. W. B. Allen, V.C., retires, receiving a gratuity, and is granted the rank of Maj.

RESERVE OF OFFICERS.

Army Dental Corps.—Capt. E. D. Batty, late Gen. List, to be Capt.

ROYAL AIR FORCE.

L. P. McCullagh is granted a short-service commission as a Flying Officer.

A. W. Comber is granted a temporary commission as a Flight Lt.

ST. MARY'S HOSPITAL MEDICAL SCHOOL: POST-GRADUATE COURSE.

THE week-end post-graduate course at St. Mary's Hospital was well attended, between 100 and 150 medical men from all parts of the country being present at the lectures and demonstrations. There can be no doubt that the course, which was instituted last year is a popular one, for the increase of attendances this year was noticeable. The adoption of some similar scheme by other teaching hospitals might go far to meet the reproach that London schools have little to offer the student when once he has left the school.

On Sept. 29th the first lecture was delivered by Mr. D. C. L. FITZWILLIAMS, the subject being

Early Diagnosis of Cancer of the Breast.

Mr. Fitzwilliams emphasised the importance of immediate pathological investigation in any case where there was the slightest suspicion of malignancy in a swelling of the breast. Malignancy in its earliest stages—just when it was of the utmost importance to detect it—showed no signs or symptoms. At the most, certain features, such as absence of pain, might give some inkling of the condition, but as a rule diagnosis by clinical methods was impossible until many months had elapsed. Records showed that there was a 2½ to 1 chance of all swellings in the breast being malignant. Surgeons were ready to open the abdomen on much less definite possibilities than that; therefore, he urged, every lump in the breast which was not obviously innocent should be considered malignant until by exploratory incision and removal of part of the growth the pathologist was able to make his pronouncement. This examination held out hopes of effective treatment, as cancer in the breast was much more favourably situated for operation than in any other organ. At the same time, he pointed out the difficulty of obtaining the patient's consent in every case to this preliminary operation.

Mr. T. G. STEVENS gave an illuminating discourse on

Prolapse.

Although the condition was called "prolapsus uteri," he showed that the uterus itself had nothing to do with the cause of it. It was really a "sacro-pubic hernia," due to two factors: (1) injuries to the levator ani muscle, and (2) stretching of the transverse cervical ligaments. The cause of these two conditions was invariably labour, and in the vast majority of cases instrumental labour. In applying forceps the head was pulled down, but the cervix was pulled down also with the result that the transverse cervical bands were stretched, often beyond recovery. The patient might show no signs at the time, but eventually prolapse resulted It was not often recognised, he pointed out, that the earliest symptoms of prolapse were those of enteroptosis, such as palpitation and various abdominal disturbances. Rupture of the perineum in itself did not in the least dispose to prolapse; the important factor was damage to the levator ani. Chronic constipation and chronic bronchitic cough were subsidiary factors. In passing, Mr. Stevens mentioned that in a prolapsed uterus, though subjected to friction, the development of malignant growths was almost unknown. The only efficacious treatment for prolapse was operation, or rather a series of operations—amputation of the elongated cervix, anterior and posterior colporrhaphy and perineorrhaphy. This afforded an absolute cure; pessaries might give comfort, but they only predisposed to further prolapse.

Mr. MAYNARD SMITH, discussing

Chronic Pain in the Right Side of the Abdomen,

differentiated between chronic appendicitis and recurrent attacks of acute appendicitis. In the former case the patient showed the symptoms of intestinal toxæmia. There were two chief causes of pain in the right abdomen: (1) chronic infection of the large intestine, and (2) visceroptosis, nor were these mutually exclusive. The first was often associated with bad teeth, and in the patient's stools definite bacteria, not normally present, were found. The best treatment was the Plombières method of lavage, intestinal antiseptics, and careful diet. Visceroptosis was constantly diagnosed as chronic appendicitis, but the removal of the appendix did not effect a cure. The symptoms were gas-distended cæcum with pain on pressure and frequently mobility of the kidney. On examination the cæcum formed a dependent bag, loose and soggy, which was very characteristic. The only effective treatment was excision of kinks, hemicolectomy, or colopexy; short-circuiting of the ileum into the sigmoid was of no value. Other causes of right-sided pain were: (1) Commencing hydronephrosis, shown by X ray of barium injected into pelvis and ureter. (2) Gastric ulcer; here the pains were always definitely associated with food. The fractional test-meal was of great help in diagnosis. (3) Gall-stones; the pain was not definitely associated with food. (4) In women, chronic pyosalpinx and salpingitis of the right side. Many illustrative cases were quoted, and some excellent X ray plates were shown.

Chronic Rheumatic Toxæmia.

Sir WILLIAM WILLCOX pointed out that in cases of arthritis every system of the body should be searched for other evidence of toxæmia, the exciting cause of which was almost certainly an infection. A recent visit to France had provided the speaker with some insight into the different aspects of chronic arthritis that received special attention in different countries. In France the metabolic side of the treatment was uppermost, the diet of arthritics receiving careful consideration, whereas the condition of the mouths and teeth of many such patients in hospital in Paris was neglected. In other respects, however, we had much to learn from our colleagues abroad. Fibrositis, now known to be an objective condition demonstrable by skilled palpation and by radiography, was treated in France by injections of a substance known as lipiodal, which contained 20 per cent. iodine. In this country great advance had been made recently in the use of massage for this condition, with the idea of opening up the lymphatic channels and removing the depositions which were responsible for the fibrositis. Electrical treatment and the application of heat were also useful in certain cases, and some patients derived most benefit from the application of a linseed poultice after painting with iodine. As to the treatment of chronic rheumatic arthritis or rheumatic toxæmia, a focal infection must be searched for and, if possible, eradicated before resort was had to drugs, though the temptation to continue removing foci of infection until there was hardly any part of the patient left must be avoided. As to other methods, reliance should not be placed on one alone, but a judicious combination of many methods, such as vaccine therapy, drugs, Plombières treatment, or spa treatment led to very considerable improvement even in severe cases. Intestinal antiseptics had given no striking results when used by themselves; a mixture of guaiacol carbonate gr. x. and aspirin gr. iii. was sometimes of value. Iodine in collosol form or still better in the form of the French tincture (3 or 4 drops, increasing to 8 or 10 in ℥ ii. water one hour after meals) had given some relief in his hands, and thyroid in small doses (gr. i. t.d.s.) was sometimes useful, and measures directed to the improvement of the general health and spirits of the patient should be tried.

Cœliac Disease.

According to Dr. REGINALD MILLER cœliac disease, usually considered rare, is in fact about as common as abdominal tuberculosis in children. Mal-absorption of fat is the basis of the disease, and the cardinal feature is the discomfort and unhappiness of the untreated child, and the remarkable improvement in its general well-being, appetite, and growth following judicious treatment. The characteristics of the the disease, said Dr. Miller, were the big proportion of fat in the stools, which were large, pale, unformed, offensive, and frequent; a white diarrhœa was

often present. Other signs were a large abdomen without any distinguishable mass, anorexia, occasional fever, diminished growth amounting in some cases to cœliac infantilism, and pallor. Dr. Miller demonstrated cases and outlined the course of the disease, which begins during the second year of life and does not clear up without treatment, though at the age of 13 to 15 the capacity for fat digestion tends to improve spontaneously. Mild cases were recognisable in which the excess of fatty acids appeared in the stools mainly in the form of soaps. The stools in these cases were large, coloured, formed, and not particularly offensive. The principle adopted was to start the child on a diet as nearly as possible fat free, to ascertain the percentage of fat in the stools on this diet, and to resist all parental attempts to add fat for a considerable period. Dr. Miller suggested as a skeleton diet for breakfast: fish, egg or tongue, bread (no butter), and syrup or honey, tea with skimmed milk or cocoatina. At 11 A.M. bovril and rusks. Midday, fish, chicken or lean meat, clear jellies, stewed fruit, boiled rice made with skim milk, or Victoria sandwich, with water to drink. Tea a normal meal, without butter, and a supper of skim milk. When fat was increased very gradually, a scrape of butter was the first step, and then puddings made with ordinary milk. Bile-salts might be given; the improvement in the child should be gauged by its general condition and by height rather than by weight.

On Sept. 30th Dr. C. M. WILSON spoke on the

Investigation of Dyspepsia.

He prefaced his lecture by emphasising the difficulties confronting the general practitioner in making a complete investigation of all cases of dyspepsia. A complete investigation involved a bismuth meal and a fractional test-meal as well as careful clinical examination, but obviously this was not feasible in every case. He warned his audience, however, against the error of failing to perform these tests in a certain number of cases where investigation was definitely indicated, an error frequently made owing to lack of time and opportunity. Dyspepsias could be broadly classified into two groups: Those due to spasm of the pylorus caused frequently by some reflex stimulation such as that from the gall-bladder or appendix, and those cases where there was true obstruction or stenosis of pylorus. Dyspepsia might be due to gastric ulcer, duodenal ulcer, gall-stones, or chronic appendix. In doubtful cases X rays and fractional test-meals threw light on the diagnosis of all these when weighed with the clinical evidence, though even with complete investigation it must be acknowledged that the diagnosis of duodenal ulcer was frequently found to have been made erroneously when put to the proof by laparotomy. In the speaker's opinion it was rash to operate on cases of dyspepsia supposed to be due to a chronic appendix unless an acute attack had occurred. He regarded a complete investigation to be necessary in the case of a primary dyspepsia in middle life not relieved by treatment and accompanied by loss of strength and appetite where carcinoma was suspected. Although there might be no filling defect in the X ray, carcinoma should not be entirely excluded; the presence of an achlorhydria in the fractional test-meal and absence of chlorides would help to elucidate the diagnosis. In cases of functional dyspepsia it was important to remember that there were two groups, broadly speaking: (*a*) Those with a dread of cancer or ulcer, when the complete investigation would effect a cure by the reassurance given; (*b*) the hopelessly introspective type of patient who would be made considerably worse by having his attention yet more concentrated on his alimentary system. Errors of secretion and loss of motility were largely responsible for many cases of functional dyspepsia.

Dr. Wilson proceeded to consider the

Treatment of Diabetes by Insulin.

This lecture was particularly valuable from the point of view of the practitioner in its clarification of the use of insulin. Dr. Wilson divided glycosuria, differentiated by the glucose-tolerance test, into renal diabetes —where no treatment is needed—and diabetes mellitus. In diabetes mellitus those cases were classified into Group I. where patients by dieting can be made sugar-free and can keep so on a living diet. These were subdivided into (*a*) patients whose blood-sugar can also be reduced to normal by dieting, and here there was no need for insulin; (*b*) patients in whom the blood-sugar is still raised though the urine is sugar-free. In Group II., in spite of dieting, the urine does not become sugar-free and patients cannot tolerate a living diet. Types (*b*) of Group I. and Group II. cases need insulin. But while the only hope of a patient in Group II. would appear to be to take insulin for the rest of his days, Dr. Wilson held out the hope that by resting the islands of Langerhans by administration of insulin in type (*b*) cases where structural damage had not yet occurred, recovery might subsequently take place. Especially in the acute type of case between 20–30 years of age was the outlook hopeful. He queried whether the reason for failures among patients treated by the Allen diet might not be the fact that in the past, although the urine was sugar-free, the blood-sugar might have remained high. Other cases where insulin would be indicated were those to whom it was necessary to administer an anæsthetic, and patients threatened with diabetic coma.

(To be concluded.)

Obituary.

SIR JOHN HALLIDAY CROOM, M.D., LL.D., F.R.C.S., F.R.C.P. EDIN.,

EMERITUS PROFESSOR OF MIDWIFERY, UNIVERSITY OF EDINBURGH.

Sir Halliday Croom, who two years ago retired from his professorship of midwifery at Edinburgh, died on Sept. 27th in his seventy-seventh year. Born at Sanquhar, the son of the Rev. David Croom, minister of the Lauriston-place United Free Church in Edinburgh, he was educated at the High School and at the University of Edinburgh, and later studied in London and Paris. The whole of his professional life was devoted to his specialty, midwifery and the diseases of women. On his return to Edinburgh he became assistant to the professor of medicine in the University, and in 1870 was appointed assistant to the professor of midwifery (Prof. A. R. Simpson) and a university tutor, becoming F.R.C.S. Edin. in 1873. For seven years Halliday Croom conducted large tutorial classes in midwifery and gynæcology, and in 1878 was appointed lecturer in obstetrics and gynæcology in the Edinburgh School of Medicine. Elected F.R.C.P. Edin. in 1880, he graduated M.D. two years later. From 1886 to 1901 he had charge of the gynæcological wards in the Royal Infirmary as assistant to the professor of gynæcology and obstetrics. In 1905 he succeeded Sir Alexander Simpson in the chair of midwifery, from which he retired in 1921. Halliday Croom was knighted in 1902, and in the same year was elected president of the British Gynæcological Society. He was the author of several works dealing with his specialty, and was examiner therein in the Royal College and University of Edinburgh, and in the Universities of Oxford and St. Andrews. He was awarded the honorary LL.D. Edin. and M.D. Dublin, and the honorary Fellowship of the American, Belgian, and Leipzig Gynæcological Societies. He was in 1903 President of the Royal College of Surgeons of Edinburgh.

In 1875 Halliday Croom married Anna Isabella, daughter of Mr. Daniel Walker, His Majesty's Inspector of Factories for Scotland. He leaves a son, Dr. David Halliday Croom, well known in Edinburgh, and three daughters.

We hope to publish later a fuller notice of the career of this great teacher and clinician.

Congratulatory Messages.

Many letters, written in unofficial capacities, have been received congratulating us on our Centenary, with permission to publish them in full or part. This permission is here utilised with a deep sense of gratitude.

FOR its century of devoted service to the common health and to the well-being of the medical profession, THE LANCET has made the nation its debtor. As in private duty bound, I acknowledge gratefully its notable efforts to promote the passing of the Medical Acts, and the establishment and expansion of the General Council of Medical Education and Registration, with all the public benefits that have thence been derived.

DONALD MACALISTER,
President, General Medical Council.

The Centenary of THE LANCET—a notable milestone in medical journalism—affords the profession a welcome opportunity of expressing a timely appreciation of the wholesome influence that it has so constantly exerted. The early and vigorous, sometimes indeed even dramatic, action of THE LANCET in exposing hospital nepotism and abuses, in organising the profession, in the establishment of the General Medical Council, and in the advocacy of national funds for hospitals and other charitable objects will always be gratefully remembered as matters of medical history. But there are other important though less striking ways in which it is constantly directing and raising the standard of medical practice, ethics, and literature, and the high character of medical journalism in this country owes much to the wise and independent inspiration of THE LANCET.

HUMPHRY ROLLESTON,
President, Royal College of Physicians of London.

My first literary effort was in the form of a letter to THE LANCET in 1881. I was a student at the time, and naturally astonished at the consideration of the Editor. When I started practice in 1884, a retired physician gave me the first 30 bound volumes of THE LANCET to assist in filling my bookshelves. I read those volumes with the keenest interest and relish. The slashing articles on nepotism, the fearless criticisms of hospital surgeons, and the ability of Thomas Wakley to conduct his own defence in his libel suits excited my admiration.

I have read the journal regularly throughout my professional life. It wins respect by fairness, and consideration of the youngest as well as the oldest members of the medical profession. It is watchful over the humdrum daily incidents of general practice as well as the highest scientific affairs of medicine as a whole. The leaders and reviews are to-day frank and fair; interest in the welfare of the profession is unlimited, and the journal has an instinctive loathing of quackery and jobbery.

In style, production, editorial skill, and judgment THE LANCET, to my mind, is the best medical journal in the world.

JOHN BLAND-SUTTON,
President, Royal College of Surgeons of England.

The Centenary of THE LANCET is, indeed, an epoch-making event in medical journalism, "the dividing of a time." All the world over, through a long series of years, your paper has represented an advanced policy in medical education, in sanitary science, and in preventive medicine. Many substantial and far-reaching reforms have followed directly upon your sane and persistent advocacy, and in this way THE LANCET has proved itself not only an invaluable current exponent of medicine proper, but also of its wise application to the betterment of man's estate and its good governance.

But something more may, I think, be truthfully said. THE LANCET has been remarkably scientific in its insight and apprehension, and studiously moderate and judicial in its exposition. It has, of course, often been vigorous in expression and critical in judgment, but there has been a disinterestedness, stability, courtesy, and dignity in its pronouncements which has reflected the best medical thought and spirit of the time. It has thus faithfully represented the *science* as well as the *art* of medicine.

So it comes about that the substance of your reward for a hundred years of achievement is the continued loyalty, confidence, and appreciation of innumerable medical practitioners, officers in all branches of the public health service, scientific workers, and even patients, in this country and in many parts of the world.

GEORGE NEWMAN,
Chief Medical Officer, Ministry of Health.

Hearty congratulations to THE LANCET on attaining its Centenary. I know of no medical journal which has attained such celebrity, and which meets the wants of English-speaking medical men better. That THE LANCET may still continue to flourish and to instruct is my earnest hope.

JOSEPH CHAMBERS, C.B., C.M.G.,
Medical Director-General, Navy.

On the occasion of the Centenary of THE LANCET will you permit me to offer you my sincere congratulations, and to express the confident hope that the Journal, over which you preside so ably, may maintain throughout its second century the high repute acquired in its first?

You will doubtless receive many letters assuring you of the esteem in which THE LANCET is held by the profession, but I may perhaps be allowed to refer specially to the debt which the Medical Departments of the Services owe to it. Those whom duty calls from station to station, and often to service overseas in isolated posts, would indeed feel themselves divorced from medical progress were it not for the weekly study of THE LANCET or some sister Journal, and such as make this study a habit need never fear that they are getting "rusty" or out of date.

In spite of the wide extension of medical experience and research, and the spread of specialisation, the selection and distribution of material in THE LANCET is so well balanced that one rarely reads a number without acquiring information which one feels to be of real and personal value. The specialist must, it is true, consult in addition his own journals, but, were he to limit his reading to those, he would soon become narrow in his outlook, and his progress would be hampered in many directions.

The R.A.M. Corps owes THE LANCET a special debt in respect of its patriotic action during the war in sparing no effort to put on record, in convenient form, the knowledge, new or scattered, which might be of service to those responsible for the care of the sick and wounded. This was of inestimable value, and was a direct and very potent factor in obtaining the results which are, I think, generally acknowledged to have been excellent.

THE LANCET has always supported the best interests of the Services, and has aided them in their own efforts to maintain their efficiency and professional standing at a high level. I can assure you that it has many readers in these Services who are most grateful to it, and who would desire to join me in congratulating it on its Centenary, and in wishing it continued prosperity.

W. B. LEISHMAN, Lieut.-General,
Director-General, Army Medical Department.

May I send you my personal congratulations on the Centenary of THE LANCET, which is recognised in India, as at home, as one of the greatest of the medical journals, and express my hope that it may continue for another hundred years to represent all that is best in British medicine?

JOSEPH B. SMITH,
President, India Office Medical Board.

Il y a cent ans, la presse médicale ne comptait dans chaque pays qu'un petit nombre d'organes. Depuis, ce nombre s'est considerablement multiplié. Mais THE LANCET, entre tous, a toujours maintenu son rang honorable et est resté l'un des plus réputés des journaux britanniques et même des journaux du monde entier.

C'est un grand honneur pour la médecine française de figurer régulièrement dans les colonnes de ce journal estimé, sous la rubrique du French Supplement. En son nom, nous adressons à la rédaction de THE LANCET nos très vifs remerciements et nos meilleurs vœux pour la prospérité de la toujours jeune centenaire.

CH. ACHARD,
Professeur à l'Université de Paris.

CH. FLANDIN,
Médecin des Hôpitaux de Paris.

Under the guidance of the Wakleys THE LANCET established in medicine its great tradition. Change in editorship or ownership has not at any period introduced variation in policy. To-day, as throughout our generation, in ethics as well as in medicine, THE LANCET stands for whatsoever is good and sound. We trust it and feel secure. When it inaugurates or supports any movement we know it has the highest interests of the profession at heart. Long may it continue to represent and to give to the world the best in British medicine.

J. GEORGE ADAMI,
Vice-Chancellor, the University of Liverpool.

THE LANCET on its centenary carries me back to times long ago. From THE LANCET blew one of the breezes which wafted me into the profession of medicine. Of my five medical uncles (including a "great" one), two lived near my home; and I rejoiced in the old-fashioned surgery, and ransacked the aromatic jars and drawers, some of them still bearing quaint old labels, such as "mummy powder," "thorn of the Unicorn," "crabs eyes," and so on. Amid these provocative stores lay dusty files of the early LANCET; some rather fusty volumes dating from its very birth. At the age of 9 or 10 for many an hour I would sit quiet with these volumes on my lap—their columns at that time half grown, rather sallow in complexion, and not very clear in print. Yet I recall the fascination of the figured woodcuts of the mystic convolutions of the human brain; and, more intelligibly, the interesting mechanism of the hip-joint; but the old Adam, born in us all, found a still livelier joy in the pungent controversies in which during those years the journal was engaged. There was a foretaste of battle in the editor's very name; and in those generations literary brickbats were hurled about by commentators and editors with a hearty pugnacity unknown in our milder day. Mr. Wakley was not a bit afraid even of the majestic Royal Society or of the noble Marquess, its President. As the Chicken remarked of Mr. Dombey, "Stiff a cove as he was, it was within the resources of science to double him up with a well-directed blow in the waistcoat." Wakley vigorously attacked nepotism, buckram plausibilities in high places, and bumbledoms. He defended the club doctor, and fought with remarkable foresight for public health and the prevention of disease. In particular he was revolted by the unchecked, almost unheeded, ravages of syphilis, and stripped its disguises from a malady which seems then to have been even more rampant than in our own time, although its neurological manifestations were then unrecognised.

I am told that the deep-sea fisherman keeps his codfish alive in a salt-water cistern in the boat, so that they may come fresh to market; but these fishes, in this respect, quite like human beings, when they find themselves in snug quarters are apt to take their ease; and so after all come to table with stale flesh. To keep them alert, therefore, the fisherman puts with them in the tank a "catfish," as I understand, a very irascible animal, whose ways are disturbing to the repose of higher circles, and the codfish are so continually exercised by this pertinacious foe that their flesh is kept in good condition. No parable has four legs; I would not compare Mr. Wakley with this malevolent fish, but I do say that the inhuman torpor of the eighteenth century was then far from dispelled or much disturbed, and that a fearless reformer was sadly needed. As Wakley himself said, he did not intend to refrain from remonstrance or even vituperation until in the affairs to which I have alluded, as also in food adulteration, in the mal-administration of military medicine, in the Poor-law, in lunacy, and in the crudities of judicial psychology, sorely needed reforms were at least set on foot. The easy classes were, of course, furious, but on cursorily turning over the old volumes again I find after all the editor's vituperations and sarcasms, if biting enough, were less naughty than I had supposed. Not only so, but THE LANCET'S main work, the shedding of daylight on hospital management and teaching, the publications of lectures by learned physicians and surgeons, and of scientific papers, was indeed an inestimable boon to the general practitioner and to the public.

If in later years THE LANCET has been able to work in an air of more amenity and on amicable terms with officials, publicists, and journalists, it has been the better able still to advocate the vital reforms fought for in its early days by its fathers, and to contend with more good temper but no less fervour and sincerity for causes as entirely farsighted and beneficent. For the ideals of the early LANCET are as yet far from their accomplishment.

CLIFFORD ALLBUTT,
Regius Professor of Physic, University of Cambridge.

For the long period of 100 years THE LANCET has been the weekly exponent of new knowledge gained in the science and art of British medicine. Moreover, it has maintained without flinching the necessity for the highest standard of character, conduct, and attainment in the whole medical profession, and has contended without fear or favour for the mutual and reciprocal obligations of the doctor and the public. For these very real services to the body-politic THE LANCET deserves hearty recognition at its forthcoming Centenary.

THOMAS BARLOW,
Late President, Royal College of Physicians of London.

Please accept my sincere and warm congratulations on the Centenary of THE LANCET. It seems to me that it has not only maintained its ancient reputation, but has advanced and progressed as its years have increased. All good wishes for its future career.

ANTHONY A. BOWLBY,
Past President, Royal College of Surgeons, England.

Best congratulations on the Centenary of THE LANCET. It has fought good fights for high professional standards and sane legislation.

WATSON CHEYNE,
Late President, Royal College of Surgeons of England.

I send you my heartiest congratulations on the hundredth anniversary of the founding of THE LANCET. The journal has had a most beneficial effect on the progress of medicine during that long period, and I may also add that its influence has done much to advance both medical education and raise the general status of the medical profession.

W. S. CHURCH,
Late President, Royal College of Physicians of London.

The celebration of your Centenary brings to mind how greatly the nation in general, and the medical profession in particular, are in your debt. You have ever espoused learning, and stood for a high standard of professional achievement and public service. Your criticism has been fearless, yet always constructive and encouraging. Your influence has been

on the side of liberty and professional unity. In the larger fields of conquest and usefulness which lie before it, the medical profession will find in you the same vision, courage, and single-minded purpose. We owe you much; we rejoice in your strength and wish you God speed.

DAWSON OF PENN,
President, Medical Society of London.

All who care for the progress of medicine will unite in congratulating THE LANCET upon this centennial birthday, and they will wish that its fine tradition and influence, so well deserved and secured, may be maintained throughout the second century upon which it now enters. THE LANCET has rendered great services of many kinds to the best interests of the public and of the profession, and of these the history of medical education and practice will always preserve the record. Not least among these has been its constant aid to the advancement of the medical sciences in all their parts, and to the diffusion of new knowledge for the service of all. Posterity will be born in heavy debt to THE LANCET. The best wish for THE LANCET at this Centenary is that the debt already incurred may be heavily increased.

WALTER FLETCHER,
Secretary, Medical Research Council.

Good wine needs no bush, and a journal which has attained to its hundredth birthday must be held to have justified itself to the full. Since the publication of that slim first volume THE LANCET has had to adapt itself to many changes of outlook in matters medical, and to shifting journalistic fashions. Dramatic criticisms and chess problems no longer figure in its pages, nor do we find descriptions of highly "genteel surgical audiences," composed of "gentlemen of cultivated manners and good education" who hang upon the words of a great surgeon—a description somewhat discounted by the account, furnished to a later number by a correspondent from Edinburgh, of the half hour preceding the entry of the lecturer. The edge of THE LANCET was very keen in those days, and it cut deeply.

A somewhat truculent youth followed by a maturity of increasing esteem, and now in mellow age, the journal shows no signs of diminished vigour. It afforded a vehicle for the views and aims of that great reformer who was its founder and first editor, and has ever been in the forefront of the battle for progress; as witness, the part which it played in securing medical registration, better methods of appointment of members of hospital staffs, and many other reforms. Nor has it ever failed to carry out its original purpose—namely, to bring the teaching of the medical schools to the knowledge of the profession at large. THE LANCET goes all over the world, and has ever been ready to publish work in scientific medicine, even when such work deals with subjects which make no wide appeal. If only for this reason the journal has earned the gratitude of all who have at heart the advancement of medical science and the progress of the healing art.

The whole profession will join in congratulation to the proprietors, and to the present Editor upon the occasion of its Centenary, and in the hope that its second century may still further enhance its usefulness and fame.

ARCHIBALD E. GARROD,
Regius Professor of Medicine, University of Oxford.

Amongst odd volumes left me by Marcus Beck is an octavo, the third edition of Vol. I. of THE LANCET, 1823–4, published in 1826. Once it belonged to Thomas Hunter, Esq., Surgeon *Grampus*, Royal Seamen's Hospital Ship, and afterwards to Tom Cooke, above whose name is written in a female hand, "Fanny Hunter, 1828—when this you see remember me when I am far away."

Occasionally I browse amongst the lectures of Abernethy and Astley Cooper, or gloat over some of its "hot stuff." For it was a pugnacious age. In these earliest years of its existence, the Editor says: "It is true we have been loaded with the vituperation of the vulgar and ignorant, but this is a kind of tax which everyone who aims at the public good must be content to pay"; and we may add that he was well able to pay with interest.

The Introduction, dated Dec. 8th, 1825, summarises the reasons for starting THE LANCET and the successes already attained. The primary purpose was *generally* of "communicating to the profession the earliest notice of every passing event in the medical and surgical world; and *especially* of cultivating the vast and hitherto unexplored field of inquiry which the great hospitals of the metropolis presented to our view." Another was the publication of lectures. A modicum of "polite literature and news of the day" had at first been introduced, but this was soon crowded out by the unexpected mass of medical material available. After two years the vigorous predecessors of the present vigorous Editor boasted of the instantaneous success of their labours. "Imbecility, in many instances, was banished from our hospitals, abuses were corrected, improvements multiplied, and a new and salutary impulse was imparted to the medical schools of the metropolis. The publication of lectures and hospital cases formed a new and distinguished feature in the annals of science, and, as might have been anticipated, was vehemently opposed by the parties most likely to suffer from the innovation."

This is the spirit, mellowed more and more by time, that has inspired THE LANCET during the wonderful first century of its existence. It is true that, as its mascot, the lancet is now only found in museums, we no longer look for cutting satire or pungent phrases in our weekly number; but we are sure to find the latest news, a full report of new scientific inquiries, healthy criticism in the correspondence columns, inspiring and instructive leading articles, and the restrained though merciless exposure of abuses.

It shows no sign of senility. Therefore, though I have long since hung my lyre upon the wall, I still read my LANCET regularly, feeling sure that it will always be up to date, and that it will continue to exert a wholesome influence upon the profession as it has consistently done in the past.

RICKMAN J. GODLEE,
Late President, Royal College of Surgeons of England.

Considering the multitude of periodicals it is rare for one to reach its Centenary. ALL the medical profession are proud that their paper, THE LANCET, should have done this, but it has an additional honour, for during the whole of the hundred years it has been an example of what a really first-class journal should be. Its very name is appropriate, for it has exposed numberless abuses and has always striven to improve the health of the community. THE LANCET Analytical Sanitary Commission led to Acts of Parliament protecting consumers from adulteration of food, and many other examples might be given of this newspaper's work for the good of the nation. Likewise it has continually upheld everything which might enhance the standing of the medical profession; quite at random I looked at a number of THE LANCET of 80 years ago and found the editor maintaining that medicine is a profession, not a trade. It has throughout a century been fearless both in its exposure of charlatans, quacks, and advertisers, and in its support of really good medical work. The position which our profession holds in the estimation of the public is largely due to THE LANCET. Those responsible for its conduct have ever kept in view the desire of its founder to disseminate medical knowledge. They have believed that, as Johnson said, newspapers are "rivulets of intelligence, which are continually trickling among us, which everyone may catch, and of which everyone partakes." The original articles and the clinical lectures and reports, which have appeared in THE LANCET, form a complete history of medicine and the allied sciences for a hundred years. Everyone must wish its second century to be exactly

like its first and hope that, when this island is excavated many thousands of years hence, the explorers will come across volumes of THE LANCET.

W. HALE-WHITE,
President of the Royal Society of Medicine.

I cannot let slip the opportunity of congratulating you on the remarkable success of THE LANCET in recent years. During the 17 years that I was editor of *Brain*, I watched with admiration the way in which the journal met the many difficult situations which arose, and I am always grateful for the interest that has been shown in the progress of modern neurology.

HENRY HEAD,
Consulting Physician, London Hospital.

I am anxious to join with the large number of your friends who will send you congratulations upon the Centenary of your journal. Of the many important contributions to the progress and to the dignity of our profession made by THE LANCET, through the attitude it has adopted at times of crisis, others can testify more specifically than I can. But I wish to add a word of praise for the invariably high standard that THE LANCET has maintained in regard to the scientific articles appearing in its columns. As the premier journal for giving expression to advances in clinical and pathological work, it has been of the utmost service to medicine to know that this high standard could be relied upon at all times. The columns of THE LANCET have always seemed to me to mirror the best in the history of medical progress.

THOMAS HORDER,
Physician, St. Bartholomew's Hospital.

The Centenary of THE LANCET is indeed a great occasion. What a wonderful record of work it represents! It has always stood for what is best in our profession. May it long continue its honourable and enlightened career!

ROBERT JONES,
Consulting Orthopædic Surgeon, Royal Infirmary, Liverpool.

I have been a weekly debtor to THE LANCET for considerably more than 30 years and hope my account may continue for years yet. As I glance over the list of contents with each fresh issue, with a sneaking hope that there may not be so many columns that must be read—if one would keep abreast with all forward medical movements—I am usually disappointed; each number contains articles that one cannot afford to let pass unnoted.

There cannot be a shadow of doubt that the medical press of a country is a sure index to the state of medicine in that country; nor is it less true that a country's place in the van of medical progress depends to a very large extent on the light and leading given by its medical press. In these respects British medical men may regard THE LANCET with pride.

THE LANCET has always welcomed to its pages the younger men who had something new to say—something which, although remote from practice, yet went to laying the art of healing on a foundation of sound knowledge. In this respect, too, I am deeply indebted to THE LANCET, as so many other men have been. I wish THE LANCET a continued prosperity.

ARTHUR KEITH,
Conservator, Hunterian Museum, Royal College of Surgeons of England.

It is impossible for me to let the Centenary of THE LANCET go by unnoticed. The paper has done wonderful work for the profession, thanks to the way in which its objects have been preserved and its career directed for so long. I trust that it may flourish for many years to come.

W. ARBUTHNOT LANE,
Consulting Surgeon, Guy's Hospital.

I congratulate you and your colleagues upon the Centenary of THE LANCET. It is satisfactory to find that the journal still pursues a course characterised by the virility of youth, guided by the wisdom of a hundred years' experience. The debt of medicine to the journal cannot be computed, and it is not possible to realise what British medicine would be without THE LANCET. Wishing your famous journal a continued career of usefulness and fame,

J. MACKENZIE,
Director, Institute Clinical Research, St. Andrews.

The passage of a century at once excites the imagination, appeals to the memory, and demands respect. The advent of the Centenary of THE LANCET furnishes its readers with the opportunity for indulgence in each of these directions. A review of the volumes may well excite speculation as to the future, while at the same time it recalls the history of perhaps the most splendid and fruitful period in the science of medicine, covering as it does the rise and development of preventive medicine, the practical application of the great discoveries in the domain of pathology, and the advance of surgery to an extent surpassing the wildest dreams of our ancestors. Of only less interest is the continuous record of the changes and developments of professional policy and ethics, and the host of personal memories which are aroused. In each and all these directions THE LANCET may proudly claim that it has taken a part the value and influence of which cannot be over-estimated.

Success such as has attended the conduct of THE LANCET and the international repute which it enjoys call for congratulation rather than praise, while it demands the gratitude of those whose work the journal has set forth and disseminated; yet, it must be stated that the paper is a possession of which the profession of this country is justly proud. A glance at the early history shows that the path struck out by the projectors of THE LANCET was not always easy and straightforward, but the storms and difficulties which have had to be encountered by successive Editors have been met with such a degree of skill and judgment that the confidence and respect of its readers have never been endangered. The early career of the journal considered in relation to the position it holds to-day awakens a comparison between its life-history and that of many of our greatest public men. Launched in a stormy sea, and renouncing novel and advanced views not palatable to all, it steadily grew in public estimation and influence until it reached the position of eminence it still occupies to-day. It starts upon its second century with the good wishes and gratitude of its readers, and a hearty desire that the second century may be still more successful than the first.

G. H. MAKINS,
Late President, Royal College of Surgeons of England.

It is an easy matter to celebrate the foundation, the continuity of existence, and the uninterrupted progress for a 100 years of any institution or organisation, by a festival dinner or other convivial entertainment; but when the occasion is the centenary anniversary of a great journal like THE LANCET something more is necessary to do it suitable honour and justice, and to give proper expression to a hope that the future career may prove to be not less successful than its past history. This something is the confidence with which it can be truthfully asserted that the projects with which THE LANCET set out at its foundation, good as they were in themselves, have in great degree been realised and accomplished; that with its growth in years the growth in results has been proportionate or even greater; and that those to whom has been entrusted the duty of carrying on the work of the journal have loyally adhered to and developed the ideals of its Founder. Such a review can only be made after careful personal

examination of the pages of THE LANCET itself from its commencement, or by the perusal of a good historical account such as Sprigge's "Life and Times of Thomas Wakley," supplemented by a personal acquaintance with THE LANCET subsequent to the period at which the history terminated.

In 1823 when THE LANCET first appeared, one medical journal at least, the *London Medical and Physical Journal*, had been in existence for 24 years. It ran from 1799 to 1833, and then ceased to exist. Another medical journal, the *London Medical and Surgical Spectator*, first published in 1808–09, very soon came to an end. Whether any other medical journal had preceded THE LANCET I do not know, but at any rate the Founder and Editor of that journal was able to state in the Preface to No. 1, Volume I., the following: "There has not hitherto existed a work which would convey to the public, and to distant practitioners as well as to students in medicine and surgery, reports of the Metropolitan Hospital lectures." Such information it was declared to be the intention of the new work to supply in the most ample manner; and in addition to lectures it was proposed to give under the head, "Medical and Surgical Intelligence," a correct description of all the important cases that may occur, whether in England or on any part of the civilised Continent. It was also announced in the same preface that it was intended to convey to country practitioners, and to medical and surgical practitioners in London who were unable to attend personally at the hospitals, as well as to the numerous classes of students whether here or in distant universities, the means of ascertaining the progress of medical science. In the sixth number of THE LANCET was started under the title "Hospital Reports" a regular series of records of the proceedings in hospital practice, and this was long continued under the heading, "A Mirror of Hospital Practice."

Other objects which the Editor set out to accomplish were improvements in the education, discipline, and the social life and habits of medical students; to afford opportunities for the rank-and-file of general practitioners to get and remain in intellectual touch with the leaders and teachers of the profession; and to suppress the various abuses in the several departments of the profession, in colleges, hospitals, and medical schools, which existed prior to, and for some time after, the birth of THE LANCET. There are many still living who for the last half or more of the centenary have been regular readers of THE LANCET, and who can of their own knowledge bear witness to the courage and perseverance with which these reforms have been accomplished, and to the constancy and thoroughness with which other developments have been effected. THE LANCET provides liberally for the publication of hospital lectures, collegiate lectures, the clinical reports of cases, the progress in tropical medicine and in public health, as well as of post-graduate lectures and clinical and laboratory notes. It furnishes helpful commentaries on the collateral sciences, and on new experimental and scientific investigations. Its leading articles, annotations, and critical commentaries are very useful and instructive. It keeps its readers informed on medical and surgical literature through its well-balanced reviews of books and other new publications. It keeps an eye on the medical services at home and abroad, and, so far as it can, furthers the interests and well-being of their members. It discusses judiciously questions concerning preliminary and intermediate education and the medical curriculum in general; and it affords the parents of intending medical students (and the students themselves) great assistance in ascertaining what is required and expected of their sons on entering the study of medicine; it has also been of outstanding use to the General Medical Council itself in more ways than one. And, not the least of its services, THE LANCET makes known the merits of medical institutions, and the development, organisation, and coöperation of professional associations and societies. It gives publicity to the needs of medical charities, and in a variety of ways renders useful information to the public as well as to the profession itself. This enumeration, by no means complete, of conspicuous features of THE LANCET, supplies a wide basis upon which to found a pæan of congratulation for a great record of excellent work admirably done.

HENRY MORRIS,
Past President, Royal College of Surgeons of England.

THE LANCET is the friend of every man in the profession. The story of its early years of struggle against privileges which were bought rather than earned, against "hole and corner" surgery, against all the heavy abuses under which our profession suffered a century ago, has been told by its present Editor in a volume of the deepest interest. Wakley was responsible for the publication of the lectures of Abernethy, and of Sir Astley Cooper. Every author who is fortunate enough to secure a place in the pages of THE LANCET to-day will proudly regard himself as in the direct literary succession to these men, among the greatest our country has produced. Wakley stood for individual and professional rights against the encroachments made on them by those within and without our ranks. Idols were shattered and at the moment no little harm was done. But the permanent good was immeasurably greater than the harm. From that day to the present time the journal has taken the leading part in this country in upholding the duties and responsibilities of the profession in its relation to the public, and no less in informing the public of the professional view of matters concerning the welfare of the people.

Regarded either as a purely medical journal, or as an instrument for the instruction both of the profession and the public upon questions that closely affect them both, THE LANCET stands, I am convinced, foremost in the estimation of us all. Long may it remain so.

BERKELEY MOYNIHAN,
Senior Vice-President, Royal College of Surgeons of England.

Having been associated with THE LANCET for many years as contributor and reader, and having had the last Editor of the name of Wakley as a personal friend and contemporary, I hope I may not be regarded as presumptuous if I ask permission to unite my congratulations, no doubt with very many others, on the occasion of the Centenary of that journal, which has so pre-eminently represented the medical profession and reflected its best ideals both personal and social. Its utility in stabilising medical knowledge carries with it an indebtedness on the part of the public which cannot well be estimated.

Long may it continue the good work.

DAV. NICOLSON,
Lord Chancellor's Visitor in Lunacy (retired).

Au moment où THE LANCET se prépare à commémorer la centenaire de sa fondation, je me fais un devoir et me donne la joie d'adresser à son Comité de Rédaction et à son vaillant Directeur mes plus chaudes félicitations.

Le monde médical tout entier participera à ce jubilé et sera de cœur avec les confrères anglais réunis pour fêter cet anniversaire, et inaugurer en même temps le deuxième centenaire de leur grand périodique professionnel. Car il n'est pas douteux que le robuste journal qui honore depuis vingt lustres la science médicale britannique, continuera à marcher allègrement dans la voie glorieux qu'il a suivie pour le plus grand bien de la corporation.

Tous ceux qui lisent THE LANCET seront d'accord, je pense, pour reconnaître qu'elle a été le plus valeureux champion des revendications professionelles en Angleterre, au même temps qu'elle apportait à la diffusion des travaux scientifiques de ses compatriotes l'appui de ses constants efforts et la puissance de sa vaste publicité. Nul organe plus que THE LANCET n'a

lutté courageusement pour assurer le relèvement et l'organisation de la profession médicale ; je ne crois pas me tromper en estimant que le General Medical Council, frère aîné de notre Fédération Médicale Belge, est le fruit de campagnes où votre journal fut toujours aux avant-postes. Et ce ne sera pas son moindre titre de gloire, par exemple, que d'avoir contribué d'une manière prépondérante à l'équité des nominations hospitalières qui jadis étaient trop souvent, en Angleterre comme dans d'autres pays, livrés au hasard ou à l'arbitraire.

Je n'ai pas la fatuité, en vous écrivant ces quelques mots, de vouloir définir le rôle important que les collaborateurs de THE LANCET ont rempli au cours des cent premières années de son existence. Mais je suis certain que dans un pays qui doit beaucoup de sa grandeur à l'énergie individuelle et à l'initiative privée de ses citoyens, on appréciera hautement, comme on le fait partout l'influence capitale de vos rédactions dans l'institution si noble et si généreuse des National Hospital Funds. Que de malheureux doivent à l'inspiration et constant dévoûment de votre journal d'avoir trouvé dans les établissements hospitaliers soutenus par le public anglais, la sécurité d'un home comfortable et le secours de soins éclairés et minutieux qu'ils n'eussent pu recevoir chez eux !

" Travail, justice, générosité " pourrait être votre devise. En Belgique nous n'oublierons jamais que votre vaillant périodique contribua largement à la récolte des fonds réunis en Angleterre pendant la guerre récente en faveur des médecins et pharmaciens belges sinistrés. J'ai eu le bonheur d'aller remercier personellement nos confrères anglais de leur touchante et effective solidarité ; je saisis l'occasion que m'offre cette lettre pour vous redire une fois de plus notre gratitude. Je suis convaincu de traduire les sentiments mêlés d'admiration et de reconnaissance du corps médical belge tout entier en félicitant chaleureusement THE LANCET à propos de son jubilé.

Veuillez faire part de nos congratulations à vos collègues de la Rédaction, et recevoir pour vous et pour eux l'expression de ma sympathie personelle at de ma fervents considération.

V. PÉCHÈRE,
Professor of Medicine in the University of Brussels.
Bruxelles, le 15 Septembre, 1923.

May I be allowed to congratulate the proprietors of your illustrious journal and yourself, as its present editor, on the Centenary of its foundation which is about to be celebrated ? THE LANCET may well be proud of its century of effort in the quest of human advancement. For fully half that time I have read its numbers and so have felt myself kept in constant touch with all that is best in medicine and with the most sane views on all the phases of its progress. Whilst faithfully chronicling the changes and discoveries in medicine and the allied sciences, THE LANCET in its editorial columns has not failed " to point a moral or adorn a tale," and so to present a fascinating and an inspiring review of the history of the healing art in its continuous making. That another century of high achievement await you is the sincere hope of

R. DOUGLAS POWELL,
Late President, Royal College of Physicians of London.

The surgical history of the eighteenth and the first half of the nineteenth century is full of interest, for it marks the rise of scientific surgery and the beginning of systematised teaching of the subject. John Hunter was the originator of scientific surgery in England, and he owed little or nothing to foreign sources. He was the founder of a great school whose influence was felt with increasing force by each generation of surgeons until the work of Lister explained much that Hunter had foreseen but was unable to explain. The desire for systematic teaching appears to have risen from the lower ranks of the profession. The leaven had been working for some time, as is shown by the " dispensary battles " of a previous generation, but the desire died down until the lean years at the beginning of the last century, resulting from the long wars in which the country had been engaged, led many members of the medical profession to desire payment for advice rather than for medicine. Before they could charge for advice, however, it was necessary that they should have been better taught than by the older methods which had remained unchanged for centuries—a rough apprenticeship followed by the practice of pure empiricism without any previous test of knowledge. The outcome of the increased desire for education was the passing of the Apothecary's Act of 1815. The Act required that a person who was going to practise medicine must be licensed, and before he could be licensed must show that he had received a fair general education and had acquired at least the rudiments of professional knowledge. Many schools arose at once in London to provide the requisite teaching, some attached to the large hospitals of the metropolis, others private schools conducted by men of great ability who for one reason or another had failed to secure a position on the staff of the hospital where they had themselves been pupils. The rivalry between the hospital and private schools was bitter and unscrupulous. The younger men at the private schools were in many cases the better teachers, and as their entire livelihood depended on the success of their teaching they gave of their best ; the teachers at the hospital schools were better organised and held influential positions at the licensing boards, where they were often examiners. There is no doubt that they used their powers tyrannically ; the private schools were suppressed or compelled to throw in their lot with the hospital teachers, and there only remained a miserable class of " grinders," who lingered on until quite recent times. During the greater part of this period there was no professional journalism as distinct from a medical press dealing entirely with medicine in its scientific aspect, and polemics were carried out by flysheets, open letters, and pamphlets, as is still the custom at the Universities of Oxford and Cambridge. The appearance of THE LANCET altered the whole aspect of things, and threw light on many dark corners of contemporary surgical practice.

For centuries it had been the custom for surgeons attached to the hospitals to bring their apprentices with them to see how patients should be treated. At first they merely received the ordinary apprenticeship fee like other masters of city craft, but in process of time it was found that apprentices to hospital surgeons acquired greater privileges than were given those whose masters did not hold such a post. The hospital surgeons were not slow to take advantage of this, and they demanded much larger apprenticeship fees than was usual ; or else, as was natural, they took intelligent members of their own family into their service. The result was not difficult to foresee. The pupil succeeded his master at the hospital, and in process of time he did so occasionally to the exclusion of better men. The early numbers of THE LANCET were devoted to the destruction of this system. Violent attacks were made upon individuals, for it was thought that deeply-rooted evils required rough measures to expose and deal with them. But the methods adopted cannot be judged by the standards of to-day. People in the first half of the nineteenth century were much more outspoken than they are at present, men hated each other with undisguised hatred, habits were coarse, feeding was gross, and tempers were short, so that what now appears to us brutal was not then considered outrageous. Principles were attacked as well as individuals, and in the end THE LANCET was found to have done the profession good and to have raised the general tone by its rough attacks. The amelioration of manners led gradually to a softening of tone in THE LANCET, but did not in any way lead to a deviation from the path of reform which had been marked out for it by its Founder.

D'ARCY POWER,
Consulting Surgeon, St. Bartholomew's Hospital.

A hundred years of public-spirited service to the profession finds THE LANCET still with undulled point, bright and trenchant as ever! Its keenness, as that of its synonym, has often boldly and wisely brought relief from mischief threatening the general health, and given issue to much laudable matter. On occasion it has, most usefully, resigned itself to pricking a bubble. On it the medical man relies, and with him it goes Britain's world over, a means to his skill, an aid to his science, a mirror and epitome of his experience. Able and beneficent the hands that have directed it so successfully; in all earnestness, even thus may it continue, indispensable, untarnished, and fine of temper as in the past and present, so through the century to come.

C. S. SHERRINGTON,
President of the Royal Society.

On the eve of the completion of its Centenary I should like to offer through you my congratulations on the high reputation which THE LANCET has won, and my best wishes for its continued influence and authority. From inside knowledge and from independent observation I am confident that the Editors, all of whom I have known personally, except the first, have throughout striven to promote the welfare, advancement, and prestige of the medical profession, and the improvement and safety of the public health.

JOHN TWEEDY,
Late President, Royal College of Surgeons of England.

The real significance of a centenary lies in this: that only that which is superlatively well done—and I may add done by idealists—can last a hundred years. And so when the centenary comes, it is an invitation to remind ourselves that we are debtors, to think for an instant of those to whom we are indebted, and to bear in mind those words of kindliest satire which tell us that those who do good by stealth (in editors' rooms and elsewhere) are delighted to be afterwards found out. Others who are less absorbed in their individual task, and therefore more constant readers, will more fitly praise THE LANCET as an organ of scientific medical instruction. They will call THE LANCET worthy to be loved because it has kept generations of readers in closest touch with the advances of medicine; because only the best work has been placed before them and the inferior has been excluded from its columns. And they will commend it because the editorial comment has continuously distinguished between what is ephemeral and makes a bid for notice and what is solid and of lasting value; and because it has always extended a welcome to the future and decently buried the past.

I leave all this to render thanks for the unforgettable services THE LANCET has rendered to its scientific contributors. My personal indebtedness to it is of the very heaviest. Let me resume it under three headings:—

1. Practically all my research work has found first publication in its columns, and it has never spared itself heavy expense. It has permitted me heavy proof corrections which I have never yet learned how to avoid. And, above all, when the cause of antityphoid inoculation was, after the Boer War, making very heavy weather it published for me a special supplement, comprising 24 statistical records, with much comment and critical matter.

2. There has been given to all my papers very careful and valuable proof-reading. Every fellow-contributor to THE LANCET knows what the quality of that proof-reading is.

3. THE LANCET is, when a question of medical science is at stake, not only lavish, but it has on such occasions the quality of moral courage—that quality without which every other virtue can be written off as inoperative.

ALMROTH E. WRIGHT,
Principal, Institute of Pathology, St. Mary's Hospital.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The University Grants Committee have decided to make an additional annual grant to the University of £30,000 to provide for pensions and stipends, for the maintenance of the library, and the extension of extra-mural work and on the women's colleges. For the last purpose £4000 per annum will be definitely allocated for the next ten years.

UNIVERSITY OF LONDON.—The Semon Lecture for the year 1922–23, entitled the Advancement of Laryngology, will be given at the House of the Royal Society of Medicine, 1, Wimpole-street, W. 1, by Dr. Arthur Logan Turner, on Nov. 1st, at 5 P.M. The chair will be taken by Mr. Charles A. Parker. Admission is free, without ticket.

University College.—Among the public lectures arranged for the session 1923–24 are the following: On Oct. 10th, at 5 P.M., a public lecture by Mr. Morris Ginsberg will be given on the Sociological Work of the late Dr. W. H. R. Rivers, and at 7 P.M. Mr. A. H. Barker will discuss the Heating Equipment of a Small House. On Oct. 15th, at 5 P.M., Miss I. C. Ward will lecture on the Application of Phonetics to the Curing of Speech Defects. On Oct. 16th, at 5.30 P.M., Prof. A. V. Hill, F.R.S., will give a public inaugural lecture on the Present Tendencies and Future Compass of Physiological Science, Prof. E. H. Starling, F.R.S., presiding. On Oct. 23rd, at 5.30 P.M., Mr. Percy Flemming will speak on the Care of School-Children's Eyesight. On Oct. 26th, at 5.15 P.M., Mr. B. Seebohm Rowntree will speak on Factory Life as it is and as it might be, and on Oct. 29th, at 5 P.M., Miss Iza Thompson will discuss the Teaching of Speech to Deaf Children. Prof. G. Dawes Hicks will give six public lectures on the Fundamental Concepts of Natural Science on Nov. 2nd, 9th, 16th, 23rd, 30th, and Dec. 7th. On Nov. 9th, at 5.15 P.M., Prof. J. C. Drummond will give an address on Vitamins. On Nov. 29th, at 5.30 P.M., Sir William J. Collins will give a public lecture on the Life and Doctrine of Sir Edwin Chadwick, and on Dec. 7th, at 5.15 P.M., Prof. Karl Pearson, F.R.S., will give a public lecture on Eugenics. Admission to these lectures is by ticket to be obtained from the Publications Secretary, University College, Gower-street, London, W.C. 1.

King's College and King's College for Women.—Nine lectures on the Biological Foundations of Society will be given by Prof. Arthur Dendy, F.R.S., on Wednesdays, at 5.30 P.M., beginning on Oct. 17th.

Bedford College for Women.—A public lecture on the Treatment of Memory-Images in Modern Psychology will be given by Miss B. Edgell on Oct. 10th, at 12 noon, and on the Quantum Theory and Electromagnetic Phenomena, by Prof. W. Wilson, F.R.S., at a time to be arranged.

UNIVERSITY OF GLASGOW.—Prof. John Ronald Currie, M.A. Edin., M.A. Oxon., M.D. Glasg., D.P.H. Birm., M.R.C.P.E., who has been elected Henry Mechan Professor of Public Health in the University of Glasgow, was appointed professor of preventive medicine in Queen's University, Kingston, Canada, in 1922. His early appointments included those of house physician and house surgeon at the Glasgow Royal Infirmary and resident medical officer at the Glasgow Maternity Hospital. He then became senior assistant physician to the Belvidere Fever Hospital, Glasgow, and later physician in charge of the City of Glasgow Small-pox Hospital. From 1907 to 1912 he acted successively as acting medical officer of health to the counties of Stirling and Dumbarton, assistant medical investigator to the Royal Commission on Poor-Laws, medical officer of health and principal school medical officer to the city of Chester, and medical officer of health and principal school medical officer to the counties of Fife and Kinross; in 1912 he was appointed medical officer to the Scottish Insurance Commission. During the war he acted as specialist sanitary officer in various districts, and from 1919 to 1922 was a medical officer to the Scottish Board of Health.

GUILD OF ST. LUKE.—The annual service will be held at St. Paul's Cathedral on St. Luke's Day, Oct. 18th, at 7 P.M. Seats will be reserved for medical practitioners and students, all of whom are invited to attend, whether they are members of the Guild or not. The Guild of St. Luke, which was founded in 1864, has for its object the mutual encouragement and support of its members in leading a Christian life. Membership of the Guild is open to students and practitioners of medicine who are communicants of the Church of England, the clergy of which are eligible for election as Clerical Associates. Tickets for the service and further particulars concerning the Guild may be obtained on application to the Guild Secretary, the Rev. H. Kirkland-Whittaker, M.A., M.D., Chaplain's House, Banstead Downs, Sutton, Surrey, or to the Secretary of the Women's Ward, Dr. Isabel Pulteney, 2, Bryanston-place, London, W. 1.

MEDICAL SOCIETY OF LONDON.—The Fothergillian medal and prize have been awarded to Sir Arthur Keith and will be presented to him at the general meeting of the Society on Monday, Oct. 8th, at 8 P.M.

ST. ANDREWS INSTITUTE.—The sum of £5000 has been received as a first instalment of a fund being raised in Perthshire for the support of the Institute founded by Sir James Mackenzie, a Perthshire man.

POST-GRADUATE COURSE AT MANCHESTER.—A free course of eight lectures will be given by the surgical staffs of the Salford Royal Hospital and Ancoats Hospital on Surgical Tuberculosis, on Thursdays at 4.30 P.M., commencing on Oct. 18th.

VICTOR HORSLEY MEMORIAL LECTURE.—The first Victor Horsley Memorial Lecture will be delivered by Sir Edward Sharpey Schäfer in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, on Thursday, Oct. 25th, at 5 P.M., on the Relations Between Surgery and Physiology. All members of the medical profession will be admitted on presentation of their cards.

THE gold medal founded by Sir Gilbert Blane has been awarded by the Director-General of the Medical Department of the Navy and the Presidents of the Royal College of Physicians of London and the Royal College of Surgeons of England to Surgeon-Lieutenant Commander Julian L. Priston, M.B., M.R.C.P., D.P.H., R.N.

SCHOOL MEDICAL SERVICE AT YARMOUTH.—The Board of Education have expressed their approval of the school medical service for the current year, but have given the authority to understand that the present arrangements for treatment of defects are in their opinion inadequate. Accordingly, Dr. A. N. Stevens has outlined a scheme for treatment of minor ailments, visual defects, and dental treatment. Cleanliness surveys by a nurse are also contemplated.

LONDON SCHOOL OF DERMATOLOGY.—In order to further the study and teaching of dermatology in London, a scheme has been completed whereby teaching will be conducted at St. John's Hospital for Diseases of the Skin by the honorary medical staff of the hospital, together with the physician in charge of the dermatological departments of the 12 London teaching hospitals. Full details will be published later, but in the meantime the announcement in our advertisement columns of lectures to be given on Tuesdays and Thursdays at 5 P.M. during the winter session may be consulted.

ECONOMY IN THE ISLE OF ELY.—A decision to dispense with the services of a second medical officer under the Isle of Ely County Council was followed by a request from the county medical officer, Dr. J. P. Walker, for a testimonial relating to the work he has already done for the Council with a view to applying for another appointment. He pointed out that the Council have admitted that the work cannot be performed satisfactorily by one medical officer, and that he feels that, although his work under the authority has so far been carried on under harmonious conditions, such conditions are not likely to prevail when the proposed extra duties are unsatisfactorily performed owing to the inability of one man to cope with them. A deputation to the Board of Education and the Ministry of Health have already been told by these departments that in their opinion the work cannot be satisfactorily performed by one officer.

SUNDERLAND ROYAL INFIRMARY.—On Sept. 26th the new operating theatre block, built and equipped in memory of the late Mr. J. Y. Short, at a cost of £7000, was opened by his widow and his son, Mr. T. Short. Dr. Wm. Robinson, chairman of the medical board, described the new building and said that the site had been carefully selected so that the block would not interfere with the future extension of the wards of the Infirmary, which was much needed because of the great length of the waiting list. The block consists of a suite of 11 rooms opening off a central corridor—namely, (1) a dark room for examination of the eye, ear, throat and nose, cystoscopy, &c., in which mastoid and similar operations can be done; (2) a recovery room with two beds; (3) surgeons' preparation room with six lockers, a long and a shower bath, wash-basin, and w.c.; (4) an anæsthetising room; (5) and (6) two large theatres, one side of each and part of the sloping roof are of glass; (7) an instrument and surgeons' final preparation room; (8) a sterilising room; (9) sisters' room; (10) a housemaids' room; and (11) store room. Dr. Robinson showed that these two additional theatres would admit of a throat and ear department being established, and also of increase of the size of the eight old wards which was necessary in the future.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Oct. 8th.

WAR: at 5 P.M.
Presidential Address:
Air Commodore D. Munro: The Possible Uses of the Aeroplane in the Medical Services in Future Warfare.

Tuesday, Oct. 9th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Discussion:
On the Use of Insulin in General Practice, to be opened by Prof. Hugh Maclean, followed by Dr. George Graham, Prof. J. J. R. Macleod (Toronto), and others.

Thursday, Oct. 11th.

NEUROLOGY: at 8.30 P.M.
Presidential Address:
Dr. James Collier: The Pathogenesis of Cerebral Diplegia.

Friday, Oct. 12th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases will be shown.
OPHTHALMOLOGY: at 8.30 P.M. (Cases at 8 P.M.)
Cases will be shown.
Paper:
Mr. T. Harrison Butler: Muscle Recession in Strabismus.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Oct. 8th.—8 P.M., Annual General Meeting. The Fothergillian Medal and Prize will be presented to Prof. Sir Arthur Keith, F.R.S., at this meeting. 8.30 P.M., Ordinary Meeting. President's Address On Some Changes in Obstetric Practice since the Foundation of the Medical Society of London, by Dr. Herbert Spencer.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCTOBER–NOVEMBER, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Oct. 8th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Myasthenia Gravis: Dr. James Taylor.
TUESDAY, Oct. 9th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Parasyphilitic Affections and their Treatment: Dr. Risien Russell.
THURSDAY, Oct. 11th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Hemiplegia: Dr. Walshe.
FRIDAY, Oct. 12th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Hæmatomyelia: Dr. Collier.

COURSE OF LECTURES AND DEMONSTRATIONS ON NEURO-PATHOLOGY.

MONDAY, Oct. 8th.—12 noon, Cerebro-spinal Fluid, Anatomy, and Physiology: Dr. J. Godwin Greenfield.

A COURSE of LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be arranged if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5s. The fee for the Anatomy and Physiology Lectures will be £3 3s., but this Course will only be given if six or more entries are received. If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7s. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.

(At 3.30 P.M. each day.)

MONDAY, Oct. 8th.—(Children's Hospital.) Mr. Dun: Surgical Treatment of Tubercular Glands.
TUESDAY.—(Southern Hospital.) Dr. Macalister: Atelei-osis and Stunted Growth.
WEDNESDAY.—(Northern Hospital.) Mr. Monsarrat: Cholecystitis.
THURSDAY.—(Stanley Hospital.) Mr. Evans: The Acute Abdomen in the Child and Adult.
FRIDAY.—(Royal Infirmary.) Mr. Thelwall Thomas: Surgical Cases.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, Oct. 8th.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.

TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—11 A.M., Dr. McDougal: Electrical Department. 12 noon, Dr. Endean: Venereal Diseases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Dr. Burnford: Medical Wards. 10 A.M., Dr. Banks-Davis: Operations on the Throat, Nose and Ear.

Daily, 10 A.M. to 6 P.M., Saturday, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 9th.—4.15 P.M., Mr. H. H. Rayner: Difficulties and Pitfalls in the Diagnosis of Acute Abdominal Diseases.

FRIDAY.—4.15 P.M., Dr. F. Craven Moore: Modern Conception and Investigation of Dyspepsia.

Appointments.

CURRIE, J. R., Professor of Preventive Medicine at Queen's University, Kingston, Canada, has been appointed to the chair of Public Health, Glasgow University.

PATRICK, A., M.B., Ch.B. Glasg., F.R.F.P.S.G., Professor of Medicine at St. Andrews University.

TURNER, A. A., M.B., Ch.B. Aberd., D.P.H., Deputy Medical Officer of Health and School Medical Officer, Croydon.

Manchester Royal Infirmary: SHAW, R. C., M.R.C.S., L.R.C.P., Second Surgical Registrar; HICKSON, S. K., M.B., Ch.B. Manch., M.R.C.P. Lond., Cardiological Registrar; MITCHELL W., M.B., Ch.B. Manch., and LOWE, G., M.B., Ch.B. Manch., Clinical Assistants; DUTHIE, O. M., M.B., Ch.B. Manch., Resident Medical Officer, Barnes Convalescent Hospital, Cheadle.

Certifying Surgeons under the Factory and Workshop Acts: CROMIE, G., M.B., Ch.B. Edin. (Bridgwater); DOHERTY, W. I., M.B., Ch.B. Leeds (Maidenhead).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne Union.—Med. Supt., &c. £450.

Birmingham General Dispensary.—R.M.O. £450.

Bristol Royal Infirmary.—Hon. Dental Surgeon.

Bury Infirmary.—Jun. H.S. £150.

Cardiff Royal Infirmary.—Hon. Dent. S.'s. Also Hon. Asst. S.

Croydon Borough Sanatorium, North Cheam.—Res. Med. Supt. £750.

Derby County Mental Hospital, Mickleover.—Asst. M.O. £350.

Derbyshire Royal Infirmary, Derby.—Two H.S.'s., H.P., &c. Each £200.

Egyptian Government School of Medicine.—Lecturer in Experimental Physiology. L.E.540 a year.

Gloucestershire Royal Infirmary.—Hon. Anæsth. Two Hon. Dental Surgeons.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. Also Res. M.O. £500.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—R.M.O. and H.P. £150 and £100.

Hospital for Sick Children, Great Ormond-street, W.C.—H.P. and Asst. Cas. O. £50. H.S. £50.

Hull City Asylum.—Jun. Asst. M.O. £300.

Leeds Public Dispensary.—Sen. Res. M.O. £200. Jun. Res. M.O. £150.

London County Mental Hospital Service.—Seventh Asst. M.O. £432.

London Lock Hospital, 91, Dean-street, W.—H.S. £200.

Lowestoft, St. Luke's Hospital.—Jun. Asst. M.O. £500.

Manchester Hospital for Consumption and Diseases of the Throat.—Hon. Asst. Phys.

Manchester, Victoria Memorial Jewish Hospital.—Res. M.O. £150.

Mount Vernon Hospital for Diseases of the Chest, Northwood, Middlesex.—Asst. Phys.

Nottingham Cripples' Guild.—Hon. Orthopædic S.

Oswestry, Shropshire Orthopædic Hospital.—Res. Surg. O. £500. Two H.S.'s. £250.

Paddington Green Children's Hospital, W.—H.P. and H.S. Each £150.

Royal Eye Hospital, St. George's Circus, Southwark, S.E.—Hon. Asst. S. Also Jun. H.S. £75.

Salford Royal Hospital.—Hon. Dent. S.

St. Mary's Hospital, Paddington, W.—Med. Supt. £350.

Staffordshire General Infirmary, Stafford.—H.S. £200.

Talgarth, Breconshire, Mid Wales Counties Mental Hospital.—Asst. M.O. £350.

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 32 (attached more particularly to the Attleborough, Aylsham, Downham Market, East Dereham, Fakenham, Holt, King's Lynn, North Walsham, Norwich, Swaffham, Thetford, and Wymondham County Courts). Applications are invited preferably from medical practitioners resident in West Norfolk, and should be addressed to the Private Secretary, Home Office, so as to reach him not later than Oct. 20th.

Births, Marriages, and Deaths.

BIRTHS.

WRIGHT.—On Sept. 22nd, at Wingfield-road, Trowbridge, the wife of Dr. Roger Wright, of a daughter.

MARRIAGES.

DAVIES—SLY.—On Sept. 26th, at the Parish Church, Wrexham, John E. H. Davies, D.S.O., M.R.C.S., of Plas Darland, Wrexham, to Nona, daughter of Dr. and Mrs. Sly, Sydney, Australia.

DUKE—HUNT.—On Sept. 25th, at St. Paul's, Camden-square, Harold Denny Duke, M.R.C.S., L.R.C.P., to Dorothy Ann Hunt, second daughter of the late Joseph Hunt, J.P., and of Mrs. Hunt, of the Pynes, Canterbury.

FRASER—BAILEY.—On Sept 26th, at the West Parish Church, Helensburgh, Matthew William Fraser, West African Medical Staff, to Grace Eileen Bailey, only daughter of the late Reginald Bailey, Limpsfield, Surrey.

OAKDEN—MOSTYN.—On Sept. 27th, at St. John's Church, Torquay, George Marshall Oakden, L.R.C.P., M.R.C.S., L.D.S., to Enid May, third daughter of Tom Mostyn and Mrs. Mostyn, Crookham, Torquay.

DEATHS.

MOWAT.—On August 21st, at Kuala Lumpur, Harold Mowat, M.D., Ch.B., Radiologist to the Government of the Malay States, late Captain, R.A.M.C., and Surgeon, R.N., aged 40 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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POSITION PAGES.—Terms on application.

THE next general meeting of the Society for Constructive Birth Control and Racial Progress will be held on Thursday, Oct. 18th, at 8 P.M., at Essex Hall, Strand, when a presidential address will be delivered by Dr. Marie Stopes on Medical Contradictions and Mistakes in Evidence in Her Recent Case. Those interested in the Society should apply for information to the Hon. Sec., C.B.C., 7, John-street, Adelphi, W.C. 2.

Notes, Comments, and Abstracts.

SOME BALKAN REMEDIES FOR DISEASE.

AN attack of sciatica during a visit to Albania furnished its victim, Miss M. E. Durham, with some entertaining reminiscences of the herbal and other remedies, including spells and magic, of local fame, which she records in the September number of *Man*. The wish of the people to kill a pelican and rub her leg with its fat because pelicans always get their feet wet and never have rheumatism, was discouraged by the doctor attached to the Austrian hospital. Other prescriptions suggested were: (1) to beat the limb with stinging nettles; (2) to rub it with roasted onions boiled in oil (this was tried and, in the form of gentle massage, gave some relief); (3) to slaughter a sheep and wrap the patient in the raw hide because the sheep eats all kinds of herbs, and their virtue will soak into the patient. The doctor's protest against this last remedy succeeded in view of his vivid description of a visit to a patient to whose skin a split black cat had been applied some ten days before. Miss Durham found among the Christians a great belief in the efficacy of Moslem spells, while Moslems resort to Christian rites for a cure. Her guide had himself been cured of rheumatism by a magician who had waved certain herbs over a fire, muttering spells, and had then placed the bunch of herbs on the patient's head saying: "Pain, pain, leave this man and go to the top of a high mountain, where there is neither man nor beast, and stay there." Another equally efficacious method was to cut some hair from the crown of the head of the patient, and some from each armpit, and burn it in a brazier, saying: "May the pain disappear as does this hair." The pain, according to Albanian peasants, obeys and never comes back. A cure for jaundice was to find a red rose and to tie a piece of yellow wool round it, tying a piece of red wool round the child. The magician says: "Yellow, yellow, go out of the child and into the rose. Red, red, go into the child." In a few days' time the rose withers and turns yellow, and the child resumes its natural colour! An even better remedy, she was informed, is to catch a small fish and put it in a bucket of water. The patient must fix his eyes on it as it swims round and round; after a time the disease goes into the fish and it dies, and the patient recovers. A certain cure for epilepsy difficult to obtain involves the detection of a snake in the act of swallowing a frog. A black handkerchief thrown over the snake frightens it and it disgorges the frog. If the handkerchief is kept carefully, and thrown over someone in a fit, the disease similarly will be disgorged.

In parts of Montenegro there were Austrian and Russian doctors practising, and home-made treatment was being gradually superseded. In the Tsrmnitza valley hernia is cured by old women in this wise, the fee for each operation being 2*d*. and a gift of a cheese or some eggs. The name and address of the patient has to be divulged but his presence is not necessary. Some freshly drawn water is put into a metal, long-necked jug (ibrik) and set to boil on the fire, with the words: "Water, I call on you three times from Heaven to earth—let the bowel of Mr. 'X' return to its place." When the water boils it is poured at once into a metal shallow basin and the ibrik inverted with its mouth in the water. As the ibrik cools a certain amount of the water rises up into the neck—the more the luckier—and so should Mr. "X's" bowel return to its place. The charm is repeated daily till relief is experienced, and such faith does it inspire that Montenegrins afflicted abroad write home to have the charm performed.

THE RISKS OF WIRELESS APPARATUS.

IN a recent report of the "Radio Hazards" Committee of the National Safety Council, Chicago, Ill., the assertion is made that carelessness and ignorance are responsible for nearly all accidents that occur during the handling of wireless apparatus. The quantity of such accidents is stated to be small, considering the great numbers of people who now own, erect, and use wireless sets, but for the guidance of amateurs the committee gives advice, of which the following is the substance:—

"The handling of antenna wires after they have become charged by falling on or touching high voltage power and light wires (or by those wires falling on the aerials) has resulted in severe shock and death. The collapse of antenna masts due to improper or insufficient guying has led to such cases as well as to serious falls. An outdoor aerial is not necessary for efficient reception of radio messages. The use of an indoor aerial eliminates contact with outside power and light wires and the hazard of climbing to unfamiliar places. A lightning arrester, while not absolutely necessary, should be installed. Storage batteries have caused several accidents, due to the fact that after charging expelled oxygen and hydrogen gases (an explosive mixture) have come in contact with an open flame or have been ignited by crossed wires. Spilling or leaking of electrolyte (usually sulphuric acid) has ruined interior furniture and caused severe body burns.

There is ample current capacity in dry cell batteries to produce a fatal shock, but ordinarily the voltage is not sufficient to force this fatal shock through the body. A good general rule for avoiding shock is to use one hand only and be sure the body is nowhere grounded. The sending station should preferably be located in a building of substantial construction, and should derive the current necessary for operation from a source other than the supply to the building for other purposes. The lead-in wire should be kept 5 inches away from all parts of the building. The same air space should be provided for all ground wires. Splices and joints in the antenna span and lead-in wires, unless made with approved clamps or splicing devices, should be soldered. All antennas and lead-in wires should be of copper or approved clad steel not smaller than No. 14 B. and S. gauge. The lead-in wires should enter the building only through non-combustible, non-absorptive insulating bushings."

In the United States, "generally speaking, fire insurance companies will not be affected adversely by the installation of radio receiving sets even with outdoor antennas. It is suggested, however, that those who wish to make certain of this point, call up their insurance broker, who will either give verbal consent to the addition or will issue a radio permit endorsement for the fire insurance policy without charge or change in rate."

ASSOCIATION OF CERTIFICATED BLIND MASSEURS.

SPEAKING recently at the general meeting of the Association of Certificated Blind Masseurs, Sir Robert Jones, President of the Association, quoted figures to show the progress made by the Association during the year 1922–23. At the termination of its fourth financial year the Association numbered 160 members, of whom 81 were ex-soldiers 37 civilians, and 42 masseuses. The general public and even some of the medical profession, he said, were badly in need of information about massage and the blind masseur. There was a popular idea that the Association was of the nature of a transient war charity, and out of this misconception had arisen the belief that, however excellent a blind masseur might be, and however patriotic it might be to employ him, he could not, of course, equal the skill of a masseur with sight. That the blind were specially suited to become masseurs was now a commonplace amongst all who had supervised their work. They acquired in certain sympathetic directions a deftness and delicacy of touch not often found in the ordinary masseur—they worked by insight and with that compensation of nature, by which where one faculty was weakened, another was made strong. It was imperative that the Association should dispel the view that the blind masseur could not compete in the open market, and that the idea of him, both as a post-war problem and as an amiable charity, should be demolished. The official organ of the Association is published monthly in embossed type, and contains lectures and articles on massage and kindred subjects by eminent medical men. Through the generous help of the National Institute for the Blind the journal is embossed and despatched free of charge to all registered members of the Association.

SMITH'S PHYSICIANS' AND SURGEONS' VISITING LISTS.

A VISITING list in the form of a pocket-book is almost an essential for the busy practitioner. Smith's Physicians' and Surgeons' Visiting List (published by Messrs. Hazell Watson and Viney, 52, Long Acre, London, W.C. 2) has now appeared for 78 years—a measure of its popularity. Bound in cloth boards or in leather, with tuck pocket and pencil, these books measure 6¼ by 3¼ in., and consist mainly of ruled pages for keeping a record of visits, obstetric and vaccination engagements, patients' and nurses' addresses, and so forth. A section devoted to things lent is a modern and useful feature for any diary. There is a preface of some 32 pages of ready information for the doctor, such as the dosage tables of the British Pharmacopœia, tables for calculating the period of uterine gestation, suggested professional charges, lists of poisons and antidotes, &c. The inclusion of a short summary of requirements under the Registration and Notification of Births Acts and of a form for making a will indicates the comprehensiveness of the book. Prices vary from 6*s*. 6*d*. to 12*s*. 6*d*. according to binding and ruling, and books can be obtained for keeping records of from 25 to 200 patients, the largest size being rather bulky for pocket use.